Volume 4, Number 5
December 1973

A publication
of the
Ontario Institute
for Studies
in Education

Ideas
about Teaching
and Learning

ORBIT 20

May peace, prosperity, and joy be yours this Christmas season.

The Editor and Staff

Graduate Degrees in Education
University of Toronto
The Ontario Institute for Studies
in Education

Programs are available leading to Master of Education, Master of Arts, Doctor of Education, and Doctor of Philosophy degrees in the Department of Educational Theory of the University of Toronto, with opportunities for concentrated study in a variety of fields.

Financial assistance is available from a number of sources, including OISE. Service awards, known as graduate assistantships, are awarded to students by OISE on the basis of academic ability, professional promise, and need.

Detailed information and application forms for graduate study and financial assistance are available from:

Office of the Coordinator
of Graduate Studies
The Ontario Institute for Studies
in Education
252 Bloor Street West
Toronto, Ontario M5S 1V6

Completed applications should be submitted by February 1, 1974.

RECEIVED
DEC 11
LIBRARY
O.I.S.E.

Vol. 4/No. 5/December 1973
A Publication of the Ontario
Institute for Studies in Education

ORBIT 20

The Teachers' Center – A Place to Grow	H. P. H. Oliver and W. R. Wees	3
H.S.1 and Some Secondary Schools	Gordon Laxer, Ross Traub, and Katherine Wayne	6
Of Many Things		8
Miller Comprehensive High School		10
Understanding China Today – The Faint Beginnings	Heather Ney	12
A Prayer at Christmas		14
Un siècle du développement de l'enseignement au Québec et en Ontario	Jocelyn Desroches	16
Youth Alienation and the School System	A. Mikalachki	18
Early Reading: Natural or Unnatural	Ragan Callaway	20
The T.A.M.A.C. – A Total Test for Total Use	F. Johnson, S. Dragich, M. O'Bryan, and K. O'Bryan	23
Must Organizations Fail? A New Graduate Program Studies Schools	T. Barr Greenfield	26
Teaching Aids from the Community – Union Carbide Canada Ltd.		27
Profile of a School 22/Subway Academy		28

Indexing: *Orbit* is indexed in Current Index to Journals in Education and Canadian Education Index

Editor: Hugh Oliver
Assistant Editors: Jean Shapter, Catherine Cragg
Designer: Burton Kramer Associates Ltd

Cover: photograph by Burton Kramer
Consultant Panel: W. R. Wees (Chairman)/J. Main/D. Ellis/ D. Hunt/F. Rainsberry, OISE
M. F. Grapko, Institute of Child Study
Miss F. Henderson, FWTAO
Miss C. Foisy, OECTA

Audience: *Orbit* is published by the Ontario Institute for Studies in Education for everybody involved in or concerned with education.

Content: *Orbit* features information about educational research and development and, in addition to discussing work carried out by OISE and schools across Ontario, draws on material from other Canadian provinces and other countries. Les articles qui intéressent surtout les francophones paraissent en français.

Contributions: We should be glad to receive from readers articles about educational practice, criticisms of past issues of *Orbit*, and suggestions for future issues. Before submitting full-length articles, for which an honorarium will normally be paid, a preliminary letter should be sent to the editor.

Subscription: $3.00 per volume (5 issues). Not published in August. Available only to subscribers; no individual copies for sale. Subscriptions should be addressed to Publications Sales, OISE, 252 Bloor Street West, Toronto, Ontario M5S 1V6. Please enclose a check or money order payable to the Ontario Institute for Studies in Education.

H. P. H. Oliver and W. R. Wees,
Office of Field Development, OISE

THE TEACHERS' CENTER

A Place to Grow

The professional turmoil in which teachers find themselves is a new phenomenon in education. Not many years ago teachers were told what to do and how, when to do it, and whom to do it to. Then, when they did the what and the how and the when to the whom appropriately, life was quiet and serene. But now the rules of the game have changed. For the majority of teachers the responsibility for what goes on in their classrooms is their own. And since the responsibility means accountability, the burden of making all the decisions that are required is no light weight to carry.

For those who decide to innovate, the responsibility is loaded. People everywhere are saying now that the only change agent who really counts is the teacher. And it's a three-dimensional change he has to make: he has to change the process of education; to do that he usually has to change his own mind; and he has constantly to help children change as they grow. A well-known Canadian artist says that art is a process of continually making judgments. The difference between the painter and the teacher practicing their respective arts is that the artist can brush out the mistakes he makes; the right or wrong of a teacher's judgment may last a lifetime. That's a responsibility really to think about.

The teacher's real problem, then, as he undertakes to reshape his thinking, is to find security in his new creed and to establish faith in his ability to think up new recipes for children's learning in the assurance that they will work.

Teachers' Centers in Britain

Twelve or fifteen years ago the teachers in England and Wales realized that they were deep into the conundrum that is worrying us now. In 1962 the proposals and the materials of the Nuffield committees, who had been working on new ways of teaching science and mathematics, started coming along. Then in 1963 teachers were concerned with the report of Sir John Newsom and his committee, who recommended sweeping changes in the secondary schools – changes that were not unthinkable but were certainly unworkable until teachers learned how to make them work. There was the Schools' Council, which began stirring up changed thinking and practices in 1964. Finally, in 1967, they had the report of the Plowden committee on the primary schools – a report based on the same philosophy as that of our *Living and Learning*, and to many people just as startling.

A discussion group at Enfield Teachers' Centre, England

And 'finally' is not the right word. The Schools' Council is still moving into the future at a rate that many teachers find difficult to keep up with.

All of these reported imperatives were rather powerful confrontations to Western thinking and long-settled practices. But they were also strong motivations for teachers who were on the verge of change. For those relatively few teachers who had already moved well into the concept of personal growth and personalized education in their classrooms, the various proposals excited an almost avid inquiry into ways of more satisfying fulfillment of the responsibilities they themselves had taken on.

We should note here that teachers in England and Wales have always prided themselves on their professional autonomy in their own classrooms. That vested interest is so strong that when the Department of Education and Science (commonly known as DES) decided to create the Schools' Council as a special branch of the Department, there was such a howl from the teachers that the government backed down and turned the Council over to the profession. Government continued to finance it, maintaining a toehold only through the appointment of an acceptable civil servant as codirector.

As well, partly to arm themselves against the various types of resistance to change, partly to gain assurance in their professed autonomy, but mostly for the sake of children, about ten years ago teachers in England and Wales put their heads together to invent a way by which they might find security in numbers. To profess autonomy, they had learned, means to stand on a very lonely platform.

The invention that they created goes by the down-to-earth, prosaic name of Teachers' Center. From the beginning the teachers' centers have been so helpful and encouraging that there are now over six hundred of them in the country. This number provides only one teachers' center for thousands of teachers, but their value has proved so great that they are being established annually by the dozens.

What the teachers really did was to use their professional autonomy to establish an institution in which they could help and support one another as they worked their way into and through the proposals for differences in what goes on in schools. When people work together, bringing the diversity of their thinking to bear upon the solution of a common problem, the fulfillment of a common responsibility, or the completion of a common task, the comradeship that develops is bound to dissipate the loneliness and at least alleviate the insecurity.

But complete security is not found merely in the trust and confidence of comradeship. When a new and obviously rather good responsibility is proposed for education, schools, and teachers, the one and only sure way to its acceptance and fulfillment is to have teachers work together to examine the proposal for its good sense, decide what changes they have to make in their concepts of the meaning and purpose of education if they are to accept it, then go to work

Making simple teaching aids at Rachel McMillan Teachers' Centre, England

A primary consultant decides with teachers on the content for a curriculum package at Halton County's Teachers' Centre

to figure out what they have to do differently in school in order to implement it.

All three of these aspects of educational change may be found, in one form or another, in the lists of issues with which teachers confront themselves in teachers' centers. There is no lack of issues, certainly. All of the reports to which reference has been made, and others issued by the score by various committees, are full to the brim with issues.

The procedures by which teachers in Britain get together to think about ideas that they want to work on is not at all complex or even ponderous.

First they persuade the Local Education Authority (LEA, analogous to a board of education in Ontario) to lend them a place to meet and to pay for the maintenance. Usually the meeting house is a redundant school or some rooms in an ongoing school. One teachers' center began as a new four-room building on a school's grounds, but became so popular with teachers that this year it has acquired further quarters to supplement the original. The rooms are arranged according to the purpose for which they are to be used; one is usually furnished as a lounge with kitchen (and sometimes bar) attached.

Each center has a head to administer it. In Britain the head is called a warden, in educational circles a title of respect. Many of the wardens work full time, especially those in centers that cater to the full range of educational interest. Some wardens working in special-interest centers spend half their time at the job. If the work load of a center is especially heavy the warden is provided with a deputy and a secretary. The staff is paid by the LEA, though selected by the teachers in consultation with an LEA official. Almost always the warden is a teacher, selected from among those teachers whose thinking is in the van of educational renewal.

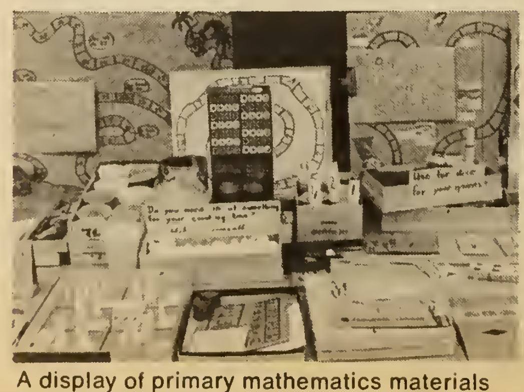
Though the warden may be in the van of change he does not impose his thinking on the program for his center. The way in which a center program may be devised (usually a program for a full school term) may be illustrated by the plan of one warden whose center is housed in a teachers' college.

In the area served by the center there are one hundred and fifty schools. In each school the teachers select a center representative, who is the communication medium between the center and that school. Mainly the communication is a list of the school's priorities for a term of study in the center. In addition, twice a year the warden brings the schools' representatives together for a conference evaluation of what has happened and what should happen to improve the work of the center.

With all of the proposals in hand the warden and the executive group of his hundred and fifty representatives establish the priorities for the program for the term in accordance with the frequency of the needs expressed. The warden takes the proposals to a meeting of his advisory (perhaps supervisory) committee for ratification. That committee, of course, is teacher-dominated, comprising as it does representatives of the local chapters of the teachers' federation and other teachers, plus the warden, Her Majesty's Inspector for the area, and an LEA Education Officer. The warden also consults with his committee regarding people who may provide the leadership for the variety of studies in the program for the term.

This is generally the organizational procedure for the activities of a center. After the machinery has produced the contents of the package, the warden, teachers, and leadership corps are on their own.

The program content may vary from the invention of mathematical games and science apparatus to a full-term study of the renovation of the primary school. In addition, the Schools' Council continually uses teachers in the centers to help evaluate and experiment with ways to implement many of their proposals. The centers are a ready-made proving ground for their educational novelties, and in numbers of instances institutes, schools, and faculties of education will arrange to offer through the centers highly acceptable study programs for a center's constituency.


A display of primary mathematics materials at a Lambton County Teachers' Centre (see *Orbit* 16)

A group of teachers discussing the application of ideas from an in-service session at Halton County's Teachers' Centre

The following is a fairly typical program, which was provided between January and March last year at a teachers' center in a small country town in Sussex.

1. French – twice weekly, 4:00 p.m.
2. Raising of the School Leaving Age – weekly, 5:00–9:00 p.m. (continuation of a course held at Sussex University the previous term)
3. Home Economics Curriculum Development Group – 1 meeting, 5:00–9:00 p.m.
4. Seminars for Probationary Teachers – 3 meetings, Wednesdays 4:30 p.m.
5. Pre-School Play Group Tutors – weekly, 10:00 a.m.–3:00 p.m.
6. Team Teaching in the Primary School – 2 meetings, 4:30 p.m.
7. The Middle Years of Schooling, Discussion Groups – 3 meetings, 7:00–9:00 p.m.
8. ROSLA and After, BBC Discussion Programmes – 3 meetings, 6:15 p.m.
9. School Assemblies – 2 meetings, 4:45–6:15 p.m.
10. Children's Literature – weekly, 7:00–9:00 p.m.
11. Science in the Primary School – 3 meetings, 4:15 p.m.
12. Teachers of English Group – 2 meetings, 7:00–9:00 p.m.
13. Drama in Education, all ages – 1 meeting, 4:30 p.m.
14. Annual General Meeting of the teachers' center – 7:00 p.m.
15. Infant Education, reception classes – 1 meeting, 4:15 p.m.
16. Primary Fieldwork – 1 meeting, 4:15 p.m.
17. National Bureau for Co-Operation in Child Care – weekly, 7:00–9:00 p.m.

Most of the work is done in the teachers' own time, though certain selected studies for selected teachers may be undertaken in school time. In either case the LEA, as a rule, pays the teachers' out-of-pocket expenses.

To maintain continuing contact with the teachers in a center's 'catchment area' (as the British call it), most centers periodically produce and distribute a bound newsletter. The newsletter publishes appropriate letters and statements by teachers about their thinking, questions and answers on various subjects, editorials by the warden, and announcements of new study topics in the center. Most of these local journals carry a special welcome to newcomers and an especially warm welcome to probationers, so many of whom have difficulty in discovering that they belong. This invitation to probationers to learn that the profession that they have newly joined practices the humanity that it preaches must be encouraging for them.

So far as one can learn there has been no attempt formally to evaluate the effect of teachers' centers on change in classroom activities. Evaluation relies on teachers' letters and comments on what teachers say the centers mean to them. But the demand for more and more is perhaps the most reliable evaluation to which the LEAs might respond.

There are two aspects of the dynamics in the explosion of the concept of teachers' centers that are of significance. The first is the initiative of the teachers in beginning the centers and the assurance of their value in establishing the teacher's domination in educational change; the second is the cooperation of LEAs, the Department of Education and Science, and many other institutions in their development. The cooperation could only have been based on faith in teachers.

Numbers of educators in the United States have become so interested in the British plan that they have persuaded the U.S. Office of Education to allot $50,000,000 for the formation and establishment of similar centers.

Teachers' Centers in Ontario
Although a few teachers' centers have recently sprung into being in Ontario – for example, in Halton County and in Sudbury – most of them are still at the fumbling stage of taking shape. Whether or not the concept catches on in the province will obviously depend on whether or not there is a real need.
In Britain, the need originated from the new curricula being developed by the Nuffield Foundation and the Schools' Council: teachers' centers provided a congenial atmosphere in which teachers could familiarize themselves with the new curricula, and from these beginnings the centers evolved into places embracing a wider range of activities.

In Ontario, there seems to be an analogous need, dating back to the time when William Davis as Minister of Education announced that he was going to decentralize education 'right down to where the action is.' His philosophy has recently received its most tangible expression in the P1J1 and HS1 guidelines whereby much of the responsibility for developing curricula and creating new courses has been transferred to the classroom teacher. But many teachers are ill-equipped for this kind of undertaking; they have no experience to draw on and feel threatened. And here it is envisaged that teachers' centers might make an important contribution to the Ontario scene.

A seminar for the head teachers of primary and junior schools at Rachel McMillan Teachers' Centre, England

In an effort to implant the seed of the teachers' center concept, the Ontario Teachers' Federation in cooperation with OISE held a conference in Toronto at the end of September. About a hundred and fifty members of the educational community (trustees, administrators, principals, and teachers) attended, and Harry Kahn, Warden of Enfield Teachers' Centre, was imported from England as guest speaker to discuss his experiences. Also two new films on the teachers' centers – *Teachers' Centre: Rachel McMillan* and *Teachers' Centre: Enfield* – were shown. These films, which were produced in England by the Ontario Educational Communications Authority in cooperation with the Ontario Teachers' Federation and which are available through the VIPS Service of OECA, provide an excellent introduction to the scope of such a center's activities.

The general consensus at the conference seemed to be that teachers' centers might well have much to offer the Ontario teacher. While it was acknowledged that many of the activities of the centers were already happening in the school setting, it was also thought that centers could provide certain advantages – by allowing teachers to share ideas with a much wider population of their colleagues, by enabling them to draw on specific expertise more easily, and by providing them with an environment better equipped, more comfortable, and more liberating than the school base. The activity focus of the centers was seen as in-service training, with curriculum development and professional development as complementary aspects of the same process.

There was some disagreement as to the form the centers should take, but rather than adopting any specific model – imported or home grown – it was generally thought that the way in which each center evolved would be dictated by local needs. At the same time, most of the centers would share several features in common: they would be run by teachers for teachers – and not be subservient to the administration; attendance would be voluntary; support would have to come from external education agencies so that the teachers could draw on the support as they needed it; and paper credits would not be a part of the deal.

Whether or not the seeds implanted at this conference will bear fruit, only time will tell. The germinating impetus may well depend on the way in which the new curricula guidelines are implemented and the pressures on teachers. If, however, we accept the fact that teachers are laden with and have accepted personal responsibility for the activities in which their children are engaged, it seems desirable that they should have the opportunity and support for that other responsibility: their own continuous inquiry.

H.S.1 and Some Secondary Schools

Gordon Laxer, Ross Traub, and Katherine Wayne, OISE

The research study outlined here was undertaken in the autumn of 1972 as one of several related studies conducted by OISE on behalf of the Ministry of Education. Dr. V. R. D'Oyley directed a project involving a comparison of post-secondary achievements of students from traditional schools and students from schools on the credit system. Under the direction of Dr. R. H. Farquhar, secondary schools on the new system were examined for changing patterns in staff and staff–student relationships, new methods of administration, new styles of leadership, and major constraints and supporting factors in the implementation of the credit system. In addition, the effects of the credit system on secondary school courses were studied by Dr. K. A. Leithwood and his colleagues. Finally, Dr. W. G. Fleming and Dr. Howard Russell undertook the task of synthesizing and disseminating this group of research studies.

At this point, some of the reports from these projects have already begun to be prepared for publication. It is hoped that the spring of 1974 will see their findings readily available to anyone who is interested in Ontario's secondary schools.

The purpose of our particular study was to discover – through an intensive examination at a small number of schools – some of the ways in which the regulations and recommendations outlined in *Circular H.S.1, 1972-73,* and put into operation in all Ontario schools by the fall of 1972, were affecting student social patterns, achievement, and standards for achievement. The basic tenet of that document was that each individual student should have the opportunity and responsibility to choose the courses he will pursue, because he – and not some distant educational expert – best knows his own abilities, interests, and goals.

Achievement and standards for evaluating achievement could be affected by the student's acquisition of the power of course selection in various ways. Our study aimed to investigate such questions as these: Is degree of achievement dropping, as students opt for courses they understand to be easier? Are standards of work demanded for passing marks or first class grades perceived as relatively constant across the course offerings of any one school so that selection on the basis of difficulty is impossible and so that all students have an equally wide set of options from which to choose? Are standards being modified in order to attract students – for example, to areas of the curriculum with a reputation for extreme rigor, or to areas where enrollment is dropping, or to relatively new course areas? Are students achieving objectives different from those sought under the old system – acquiring less factual knowledge, for instance, but more understanding of how to investigate or how to learn?

An inevitable result of the student's making his own course selection is the individualized timetable. Gone, abruptly, is the cohesion – somewhat artificial, but certainly influential – of the class who have their attendance taken together and together troop from English to math to science, seeing fresh faces only in the gym or the art room. Under the new system, a student may find himself sharing a lab table with a student whose main area of concentration (secretarial, modern languages, electricity, etc.) is very different from his own. How will he be affected? Will his ideas of status develop in a new way, or fail to develop? Will he have sufficient opportunity to establish the friendships that will lend meaning to his life at school? Will he be able to find any solid basis for a sense of identification with his school? Will he, feeling less like an individual being attended to and more like a card being processed, doubt that anyone will notice – and drop out? This is the sort of question our investigation of student social patterns intended to explore.

In addition to examining some of the new system's effects on the social and academic areas of student life, our study attempted to collect information on the new system itself. The regulations and recommendations in *H.S.1* were 'open' in character, and thus could be implemented in a variety of ways and degrees. We wanted to examine several contrasting variations of the new system.

This became our main independent variable, then – degree of implementation of the new system. It seemed to us that the ideal way to make a valid assessment of the system's effects would have been a before-and-after study. But since it was already in operation everywhere in the province, our best alternative was to approximate such a study by means of our selection of schools: thus we sought to compare the apparent effects on students of their own school's wholeheartedly adopting the spirit as well as the letter of the crucial circular, or merely accepting minimally its regulations, or else attending to its suggestions in some moderate way. In a preliminary selection of thirty-two schools, we controlled as best we could interschool differences other than degree of implementation that might affect achievement and social patterns.

We examined in detail the calendars of all these schools and found startling – though expected – differences in such matters as the number of compulsory subjects, the barricades of prerequisites facing the would-be takers of some courses, the package deals offered in business or technical areas, and the possibilities of working on two levels of difficulty at once or climbing from one level up to another. On the basis of the information their calendars provided, each of the thirty-two schools was given a score indicating the degree to which it appeared to be implementing the letter, and to some extent the spirit, of *H.S.1.* The more responsibility the school seemed to trust the student with or to train him for, the more willing the school appeared to try to meet the student's developing and shifting ambitions, the higher the score awarded. The five schools we settled on finally represent a spread of these scores: Schools A and B were given relatively low scores; School E, an outstandingly high score; Schools C and D, scores above average.

In our visits to these five schools we sought information through a variety of methods about modes of adopting the new system, social patterns, and achievement standards. Skill tests were administered to Year IV students, and questionnaires to students in Years I to III as well as to teachers. In addition, the administration and a random selection of guidance counselors, department heads, teachers in all subject areas, and students in all five years were interviewed.

Data collected in these ways on various aspects of our schools' implementations of the new system supported – with qualifications – our A to E ranking. But it also confirmed our suspicions that, because of the openness of *H.S.1.*'s suggestions, variation on certain issues (such as the meaning of distinctions between levels of difficulty) was so great that between-school comparisons were of limited validity.

Nevertheless, meaningful evidence of between-school differences in degree of commitment to *H.S.1.*'s philosophy of responsible individualism was plentiful and impressive. For example, School E had no compulsory courses; A, B, and C had many. School E had no courses designated as 'general' or 'advanced,' and never used these designations as screening or streaming devices; in a very few subject areas, a small proportion of the courses offered were specified as 'leading to Year V,' but most classes at School E accommodated a complete range of abilities by means of a range of levels of difficulty equally complete. The focus was, wherever possible, on the individual.

Every other school in our selection had designated levels, though Schools B and C offered some genuinely unphased courses, and Schools C and D encouraged students to mix levels within their programs, choosing phases as well as subjects according to their interests and abilities. School A designated students, and not merely courses, as 'advanced' or 'general.' School E, like C and D, could accommodate a student who developed relatively late a special interest in a business or a technical area; School B was outstanding in the way it began early and thoroughly to claim and train its specialists in commerce or technology and to segregate them from the dabblers.

Data collected on student social patterns was strikingly short on between-school differences of significance. Overall, most students said they were happier mixing with a wide variety of classmates than feeling locked – all day and all year – into a group they might find restrictive, boring, or uncongenial. To most, the idea that student social groups might be formed on the basis of courses selected, that the 'tech guys' or the 'general kids' could be social entities, was incomprehensible. A significant number were unaware of the kinds of courses their friends were taking. It seemed unimportant to most students in all schools that they took classes with their good friends.

A minute proportion of students saw themselves as friendless, wanting to make friends but having difficulty doing so. Guidance personnel in all schools felt this an accurate assessment, but they saw no evidence that the number of these loners had increased with the adoption of the individualized system. Concern that this new system might leave students unable to identify with their schools was not supported by our data. The school where most good friendships were begun in classes and where most students described themselves as 'very happy' with their school was the one most committed to the new philosophy – School E.

In contrast to the data on student social patterns, the data on achievement standards was replete with significant differences. From students, we learned that there were large differences in the perceived difficulty of courses, and these differences were similar from one school to another. Courses in the traditional academic areas – mathematics, science, history, languages – were perceived to be most difficult, whereas courses in music and theater arts were seen as easiest. Clearly, the student who needed a course he could pass knew what to choose.

In addition to differences among courses, there were significant differences among the schools. Marking standards were far from constant across all five. Students at school E were given higher marks than students attending any of the other four schools, despite the fact that the tested ability of students to deal with basic verbal and mathematical tasks did not differ from one school to another. At the opposite end of the scale were Schools A and B where high marks were least frequently awarded. But the differences among A, B, C, and D were not nearly so marked as the great gulf between these schools and E.

Why was E so different? Undoubtedly the most important reason was the school's feeling and policy that failure should be minimized. None of the other schools espoused this philosophy.

The steps taken at E to minimize failure included the adoption of a 'mastery-learning' approach in mathematics courses and the awarding of 'incompletes' instead of failures to students who were willing to contract with the teacher to upgrade the quality of their work or complete unfinished assignments early in the next semester.

Aside from the issue of philosophy, the beliefs and evaluation practices of the teaching staff at School E were different from those of the other staffs. At E, teachers believed that the quality of work produced by present-day students was higher than that produced by students in previous years. By contrast, teachers at A, B, C, and D felt that the quality of work had declined or at best had remained unchanged. The teachers at E based their evalution of students on different evidence from the teachers of the other schools. At E, teachers made almost no use of final examinations (the teachers at C similarly made little use of final examinations) and paid most attention to classroom tests and assignments. They also gave a higher weighting to class participation and attendance than did the teachers at the other schools.

How are students affected by these differences in achievement standards? Possibly our most significant finding was that the students attending E had a higher level of aspiration than the students attending the other schools.

Because marking standards were easy at E, it should not be assumed automatically that the students in attendance there were learning less about mathematics or French or learning how to learn. Unfortunately we could not gather any information on the learning that occurred from day to day in specific courses, although this would have provided a good base from which to compare schools. We did, however, learn from judgments of amount of work (these judgments again being made on an absolute scale) that students attending E perceived themselves as working as hard or harder in their courses than students attending the other schools. We also discovered from our tests of basic verbal and mathematical skills that none of the five schools we studied was doing a better (or worse) job than another in fostering the development of these skills.

The temptation to find resounding and simplifying implications in this study must be resisted. The results of our investigation do not provide grounds for heavy conclusions about the effects that the introduction of *H.S.1*'s changes is having on Ontario secondary schools.

There are several reasons why this is so. For one thing, the schools we studied – five, merely – were chosen from too restricted a subgroup of schools for the findings about them to be generalizable to all secondary schools in the province. For another, since the five were not perfectly matched on all features, the differences between the schools on what may be called extraneous factors may have been as responsible as the differences in *H.S.1* implementation for the differences we found in social and achievement patterns. A third major limitation of this research is in the way achievement was studied. Most of the data collected on evaluation standards and achievement were subjective and impressionistic. Those data against which this criticism could not be leveled – the ability test scores – were also of limited value, because they referred to very general student characteristics, not to gains in knowledge from day to day in specific courses or to the development of the ability to learn.

In view of its limitations, this study can best be regarded as a small – yet, we think, worthwhile – contribution to the available pool of knowledge about Ontario secondary schools.

# of many things

Iroquois Falls Enrolls Overseas Students

Michael Barnes, Kirkland Lake

Last year Iroquois Falls Secondary School numbered among its students three young men from Iran. The three came to Northern Ontario as a result of a decision reached at the Institute of Foreign Languages in Isfahan that senior students would benefit from spending their final year in a Canadian school. In the spring of 1972, this decision was relayed to George Daly, principal of Iroquois Falls Secondary School, together with a request for the admission of Ghasem Mostaghel, 18, Ahamad Motamedi, 19, and Mehdy Farazpey, 18. The request was approved by the Cochrane–Iroquois Falls Board of Education and the young men were enrolled for the 1972/73 year.

On their arrival in September, they were given a warm welcome and their courtesy and personal charm soon made them popular. They were enthusiastic students both in the classroom, where their academic progress was good, and in extracurricular activities. 'They took part in everything,' commented principal Daly, 'even a 30-mile Walkathon sponsored by the student council.'

Understandably, language presented certain problems and the boys faced their greatest challenge in attempting to speak idiomatically. Here, as in other areas, they were quick to acknowledge the tireless help of their teachers. Of one staff member they said, 'He is not a teacher to us, but our friend.' The career goals of the three were engineering and architecture, and an interesting point of speculation for the guidance department was whether the university would regard them as 'foreign' or 'Ontario' students.

They welcomed questions about life in Isfahan – a beautiful city whose tree-lined streets are home to a million people. Situated in south-central Iran, it is second in importance only to the nation's capital. References to Iran as a melting-pot of Middle Eastern culture brought the proud response that Persia greatly influenced the culture of her neighbors.

Today, they explained, Iran's ties with the East are giving way to a closer association with Europe. They admitted, with considerable amusement, that Canadians think of Iran in terms of oil and carpets. Canada, they stated, is best known to the people of Iran for the great variation of its scenery and physical characteristics.

The style of northern buildings seemed unusual to them. They said of the homes, 'You have no attics. . . . People do not relax in their houses here. They are always on the move.'

They admitted to experiencing problems of adjustment. It is, after all, a far cry from a family home in Isfahan to a bachelor existence in Iroquois Falls. But their feelings about their year in the Ontario secondary school system were definitely positive. Queries about how employers at home would react to the skills acquired in Canada brought the reply, 'They will swallow us.' That they deeply appreciated the special provisions made for them was evident from their frequent comment that 'Without your school board, we never could have come.'

Mini-Gardens for Young Children

William S. Bruba
Mansfield Campus
Ohio State University

Gardening is a valuable educational experience for kindergarten and primary children; even the very young can plant and look after a garden. A small plot of his own increases a child's motivation, and with his sense of ownership comes a sense of responsibility. Child-size tools will enable him to develop gardening skills quickly and a careful choice of crop will ensure an early reward.

If land is available near the school, part of it could be set aside for a primary division garden. If not, perhaps a few interested parents would set aside corners of their own gardens for the children's use. The site must be sunny and well drained and, because the gardeners are very young, it should be as conveniently located as possible. When a suitable location has been found, planning may begin.

The garden can be divided into individual plots or plots to be shared by two or three children. Seed catalog pictures will help the children decide what to grow; however, the teacher should check their selections to make sure that they are suitable. For example, children in this age group would doubtless be delighted to grow a Halloween pumpkin, but unless there is plenty of space for the pumpkin vine they will need to be content with smaller things. Fast-growing vegetables are a good choice. Radishes, for example, are ideal: they need little space, come up quickly, are ready for the dinner table in three or four weeks, and may be planted a row a week to provide a season's supply for the children's families. If the children have a variety of vegetables and flowers, they will have the added interest of comparing how the various plants grow in their particular area.

Their seeds, as well as the small gardening tools, can be bought at a department store or garden center. Some of the children may wish to buy their own tools. If it is difficult to find money for the project, a local garden center might donate seeds and perhaps lend some of the required tools.

Work in the garden will begin with an adult – teacher or parent – turning the ground with a spade. Using their small tools, the children can then prepare it for planting. When the ground is ready, they should be shown how to plant the seeds. Here again a variety of seeds will add interest and increase the children's understanding of growing things. When the plants come through the ground, the children are ready to learn how to look after the garden. Soon they will need to know how to tell when their vegetables are ready for use and how to harvest them.

The project may be made more meaningful by inviting a local farmer or agricultural representative to visit the garden and talk to the children about what they are doing. And if your school has a group of parent volunteer helpers, perhaps some of them would like to be involved.

Making Learning Materials

Eleanor Duckworth
Lighthouse Learning Project
Atlantic Institute of Education

In Arichat, Nova Scotia, the maintenance staff, under the direction of Joseph Mury, has found that broken and discarded school desks are a first-class source of hardwood. In addition to their maintenance work and in addition to the furniture-making they do for several of the schools, they turn old desks into admirable sturdy toys for primary-age children – trucks and trains that are big enough and sturdy enough for small children to sit on, rivaling any expensive European toys for design and craftsmanship. Joseph Mury also has a relatively simple design for building an overhead projector from materials that cost only $40. He has made a number for the schools in his area, and has passed the design to industrial arts teachers and others who have made them for their own schools.

One of these industrial arts teachers is Ting Ping Lee of Antigonish East Regional High School. Ting and his students have included it in a catalog that lists a great variety of materials they are prepared to make for teachers and schools in their area. The materials include jigsaw puzzle maps, room dividers, games for primary children, materials for science experiments, math lab materials, and others. Many of them are original designs by Ting Ping Lee and his students. Financially, the school board has made the following arrangements: Ting orders, in advance, a considerable supply of the materials necessary for this production; when he and his students supply an order, they inform the school board of the cost of the materials used in supplying that order, and that cost is charged against that school's budget for teaching aids.

The St. Joseph's Day Care Center, in Halifax, also worked out a good arrangement for getting materials made. They had a Local Initiatives Program grant, which, of course, covers salaries, but gives only very little money for materials. So they requested to have a carpenter as one of the salaried positions, and he proceeded to make materials for them throughout the duration of their grant.

– Reprinted from *Lighthouse,* a publication of the Atlantic Institute of Education

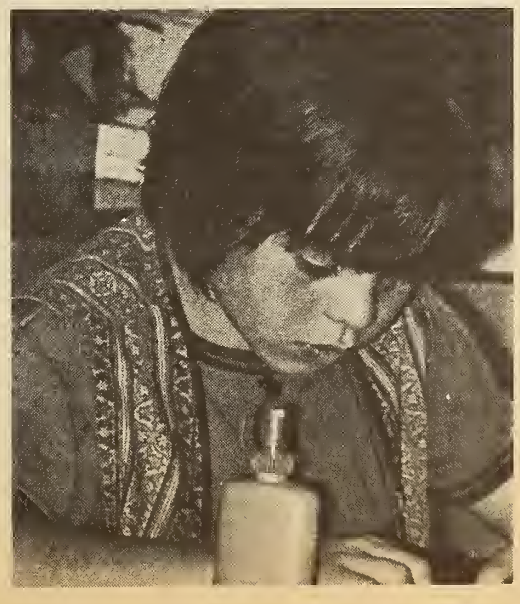
Scissors-and-Paste Technology

Sheila Willson
OISE

Can we help children to understand the technology that is part of their lives? Can we make them aware of how that technology relates to the natural environment? Can we stimulate them to explore their world on their own? We think so, and our attempt to take a step in that direction intrigued and delighted a grade 4 class at the Institute of Child Study.

Our approach involved having the children take apart and reconstruct everyday items, and the first subject of investigation was corrugated cardboard. We asked the children if they knew how it was made and if they thought they could make some. They were quite unprepared to answer and began to analyze the problem only after receiving considerable direction and encouragement.

We gave the children samples of cardboard and suggested that they take a piece apart to find out how and of what it was made. They discovered that simple corrugated cardboard consists of three layers of stiffened brown paper, two outside layers and one inside rippled piece. Having learned this, they were ready to try to make some. They considered possible stiffening materials and agreed that wallpaper paste would be suitable, but they had difficulty figuring out how to make the corrugated piece. After some directive questioning, they decided it could be made from a piece of paper soaked in paste, moulded over a series of small rods, and left to dry. When it was dry, the two covering pieces could be soaked in paste and laid across the top and bottom.



Satisfied with their planning, the children began to implement it, and as they worked they discussed possible designs for machinery that would do the work for them. When the task was done they were very pleased with their cardboard replications, and what was more significant, the technological process had become meaningful to them.

Through analysis (identifying the component parts of cardboard) and synthesis (putting the parts together) the children learned how parts are related to a whole. This gave them an understanding of the product that they could never gain by merely accepting it on the basis of appearance and function as people so often do. Having become aware of the parts, the children could go on to investigate what they are made of and then proceed to a study of how the natural environment is used to create the products of a highly technological society.

If this analytical viewpoint becomes part of a child's way of looking at his world, he will acquire a great deal of information that he can interpret and use in many ways. A child who has examined a paper bag, made one, and used it to carry his possessions has some idea of the different weights and qualities of paper and how paper responds to use. If he found it less than satisfactory, he may even have undertaken to evaluate alternative materials. He has learned about size and general and specific functions. Perhaps his bag was too small to carry his shoes but just the right size for his notebooks.

Items suited to this kind of analysis are plentiful in both classroom and home. Paper bags and corrugated cardboard make a simple beginning. Other possibilities are sandals, an ordinary umbrella, an orange juice container, carpeting, and a hard-cover book. Children like to choose their own items, and, as we discovered, their attempts to reproduce them lead naturally to an awareness of technology and its place in their lives.

MILLER COMPREHENSIVE HIGH SCHOOL
A PROBLEM OF SIZE

One aspect of freedom: the powerlessness and insecurity of the isolated individual in modern society who has become free from all bonds that once gave meaning and security to his life. We have seen that the individual cannot bear this isolation; as an isolated being he is utterly helpless in comparison to the world outside and therefore deeply afraid of it; and because of his isolation, the unity of the world has broken down for him and he has lost any point of orientation.

Erich Fromm, *Freedom and the Individual*

A Roman Catholic comprehensive school in Regina, Miller High was founded in 1966. Currently it has an enrollment of over seventeen hundred students, and with extensions to the present building, its numbers may eventually be raised to over two thousand.

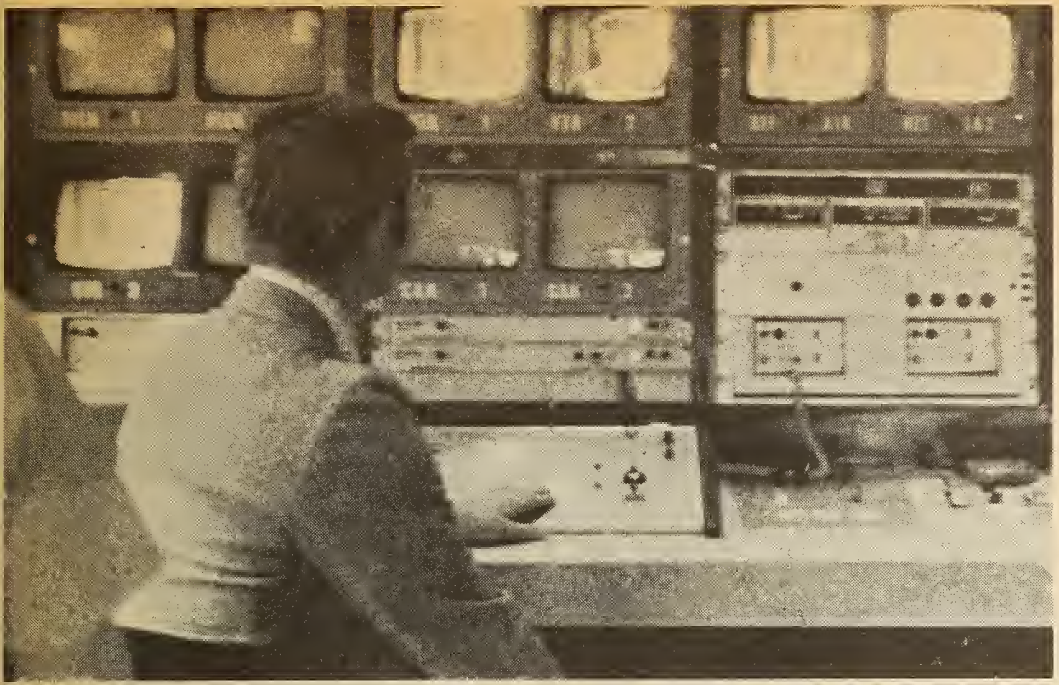
By most standards, Miller is moderately progressive. The school incorporates within its organizational structure most of the educational changes introduced into the Canadian high school setup over the past decade. There is a credit system and the school year is divided into two semesters. Beyond the tenth grade, grading is virtually nonexistent. All the students have a wide choice of electives, and the master timetable is programmed each semester in the school's own computer. Insofar as Miller is a comprehensive high school, there are four student streams: academic, modified academic, in which some vocational subjects are included; vocational, in which there is also a core curriculum of such subjects as mathematics and English; and general education, which is a three-year course with a predominantly vocational bias. With the agreement of his teachers, it is very easy for a student to transfer from one stream to another.

Although the present school building is temporarily a little crowded, it is nonetheless handsomely equipped, and when the new additions have been completed it will surely rank as one of the most attractive high schools in the province. For example, the school's television studio would be the envy of about any high school anywhere in Canada.

In contrast to most schools, Miller still retains a few regulations governing student dress – there are constraints on what the boys may wear and the girls are expected to attend school in gray uniforms. In general, however, the school allows its students a good deal of freedom and in turn demands of them that they show responsibility. There is only one outstanding problem at Miller – it is a very large school and it is still growing.

Leo Frison, the principal of Miller High, has been preoccupied with the size of his school ever since it opened. 'It is difficult,' he says, 'to retain any sort of human touch when there are so many students.' In particular he is concerned about the educative process becoming totally impersonal, without any group in the school with whom the individual student can identify, and so leading to student alienation.

To try to solve this problem, Mr. Frison started out by establishing a house system. But as happens quite often in Canadian high schools, the system failed to click – there were the few students who participated with enthusiasm but the bulk were indifferent; there was no house spirit, no tradition. As a consequence its effectiveness suffered. In the meantime, however, Mr. Frison introduced another system of faculty adviser groups, and so far this has been working with some success. The groups consist of a staff member and twenty-five to thirty students, all from the same grade level. Almost all the staff are directly involved. The groups meet for about twenty minutes each day throughout the whole four years the students are at school. At these meetings the staff member is responsible for keeping an attendance record and for explaining any school announcements, which are made at that time. He encourages his group to participate in co-curricular activities and discusses with them matters relating to the school and the community. At a more personal level, he acts in the role of an advisor to individual students who may come to him with problems about school or home. But the main function of these groups is to form a point of orientation in the school



with which the student can identify, where he can get to know other students on a long-term basis and establish a close relationship with at least one member of the staff. Mr. Frison would like each faculty adviser to teach his group as a class for one or more subjects, preferably for a couple of years, but so far the timetabling schedule has made this impossible.

In effect, what Mr. Frison wants to do is to recover some of the rapport that used to exist when the students in a class stayed together as a unit and a single teacher was largely responsible for them. Recently he has to some extent achieved this in the general education stream, where a single teacher now takes the same class for several subjects. Obviously the teacher requires a sound background of general knowledge, and in the other streams, where specialization is more critical, such a scheme is impractical.

Subjective evaluation of the faculty group adviser system indicates that it is working well and making school a more meaningful experience for many of the students. Attendance records are better and there are fewer dropouts. But although it is helping to solve the size problem on a horizontal level, the groups are confined to students of similar age and grade level. To provide some form of integration on a vertical level, Mr. Frison is thinking of reintroducing the former house system – only this time the houses would be created out of the existing faculty adviser groups, one group from each grade level. A large measure of cohesion, previously lacking, would thus be built into the system in advance.

'My aim,' says Mr. Frison, 'is to break down this large school into a number of smaller "schools," and at the same time to make good use of the flexibility, facilities, and range of teacher skills that a large school enjoys. But it takes time.'

Understanding China Today

The Faint Beginnings...

Heather Ney
Downsview Secondary School

I visited Mainland China in the spring of this year with twenty-four other students and four teachers from my high school. The many preparations for the trip included an orientation program designed to acquaint us with facts about China's past and present. This was the beginning of an entirely new and different learning experience for me. Instead of merely accumulating facts I would be learning and then experiencing – I would see for myself the schools, factories, and communes, and I would actually be able to talk to Chinese people about their way of life. Thus, the trip was the ultimate educational opportunity; however, in the final analysis more than just knowledge was gained.

Since the Communist takeover of China in 1949, we have often heard the expression 'Bamboo Curtain.' The vast country of China holds one-quarter of the world's population and yet has been a mystery in past years, shut off from the rest of the world by this 'curtain.' During its early development the People's Republic wanted isolation, but the events of recent years have revealed a changing attitude. Just three years ago Communist China established diplomatic relations with Canada and shortly after was admitted to the United Nations. Official visits to China by political figures such as President Nixon and Prime Minister Trudeau have increased, as have tours by newsmen and educational groups. A direct air route has now been established between Canada and China. It seems that China is cautiously beginning to part the Bamboo Curtain.

Many countries misunderstand and fear each other because they are not in political agreement; traditional prejudices are nurtured by a general lack of knowledge. This is the case with China and the West. We do not understand China and China does not understand us. Responsibility for the promotion of understanding does not lie exclusively with political leaders. There is only so much that they can do since, for them, the barrier of political difference is inescapable. In a group such as ours the situation is entirely different. We were not on a political mission but an educational one: we were eager to learn and the Chinese were eager to teach. They showed great pride in their country and its achievements and we in turn shared Canada with them. As the trip progressed and our guides became our friends, I began to realize the importance of such cultural exchanges to increased understanding between nations.

A bond was immediately established between us and any Chinese we met because we are Canadians and as such are fellow countrymen of Dr. Norman Bethune. Dr. Bethune, a native of Gravenhurst, Ontario, died while serving in the Sino-Japanese War. His accomplishments and sacrifice for China were praised everywhere we went. Every Chinese person is exhorted by Mao to 'learn the spirit of absolute selflessness from him.' Furthermore, he is told, 'With this spirit, everyone can be useful to the people. A man's ability may be great or small, but, if he has this spirit, he is already noble-minded and pure, a man of moral integrity . . . a man who is of value to the people.' (Quotations from Chairman Mao Tse-tung, p. 171.)

A visit to the Great Wall

Photos: Sharon Prus and Sandy Zbihlyj

Canadian students give a lacrosse demonstration

This quotation shows the prevailing attitude in China today. As we were told in every institute of learning we visited, from primary school to middle school to university, Mao requires that one be developed morally, physically, and intellectually 'in order to become a worker with both socialist consciousness and culture' (p. 165). In other words, every person is judged not only by his mental and physical qualities but by his level of political maturity. All are filled with the desire to work together to build China, through devotion and strict obedience to the state. Individual wishes are secondary in importance. Thus, when we asked a seventeen-year-old girl her plans for the future she replied, 'Since China is a socialist country, any job will be satisfactory – I will follow the Party.' Her own personal wish, however, was to become a teacher. Her complacent attitude seemed strange to me because of the individual-oriented type of society I am used to.

In China all thought, all action, and all goals are affected by political ideology. Slogans on billboards and buildings such as *Unite to instill greater victories!* and *Work hard to build Socialism!* constantly remind the people of their responsibility and function as part of the whole. Even the unsophisticated understand concepts like class struggle and Marxist proletarian thought because a great deal of time is spent by everyone in private and group study of politics. Groups such as Communist Youth Leagues in factories and the Red Guards in middle schools exist primarily for this purpose. An eleven-year-old girl told us, 'We must study to become good socialists.' Exuberant children in bright costumes performed song-and-dance routines that always had political and nationalistic themes – for example, 'We are Little Red Soldiers of Chairman Mao' and 'We Love Tien An Men.'

An old woman who allowed us to visit her home on a commune near Peking told us that before Liberation she had lived in poverty. She thanks Chairman Mao that now she has a new, happy life. As Westerners, we tend to assume immediately that a good percentage of the Chinese don't truly believe what they are saying, or that they are merely automatons with no opinions of their own. This is not true. They know that conditions have greatly improved under Mao's leadership. The old woman I mentioned remembers well the years of hardship she endured: three of her children died of starvation.

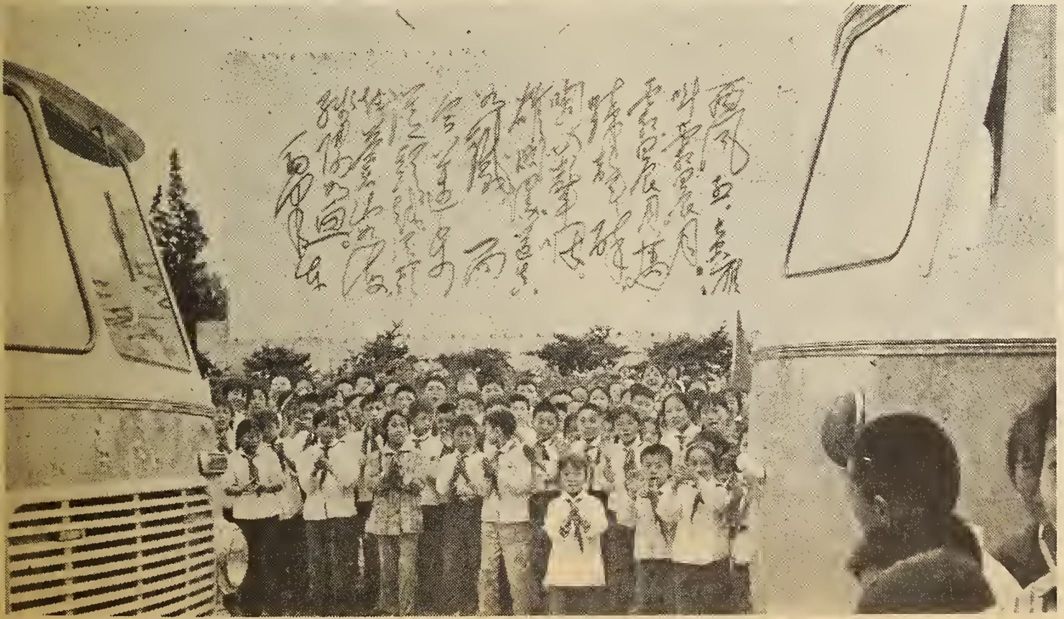
I know that I would find the fanatical devotion to Mao and the utilitarianism of China hard to take if I had to live there – but that is not the point. The Chinese have a sense of purpose in life, and the majority seem content. Crime and dishonesty, serious manifestations of purposelessness in our society, are remarkably rare in China. Once we accept the fact that the Chinese are not just parroting trite phrases because they have to but really are devoted to their country, we begin to understand the Chinese way of life. The key is to try to see their situation as they see it, and not base our conclusions on the standards of our society. We can sit back and condemn the Chinese Communist government for the depersonalizing effects of its policies, but for a struggling nation of eight hundred million the alternatives are starvation and poverty.

I wonder how many would pity the people of today's China if they visited the Peking Youth Amateur Athletic School or the Children's Palace in Shanghai. These are only two of many institutes where children have the opportunity to develop in their spare time any interests or talents they have. In the Peking school we were shown unbelievable displays of gymnastics, ping-pong, and Wu Shu (the highly developed Chinese sport of shadowboxing) by children whose ages ranged from six to sixteen. The Children's Palace is also a 'spare time' school, with fifteen hundred children enrolled. They learn such skills as art, singing, instrumental music, morse code, sports, games, handicrafts, and even the theory of acupuncture. All institutes like this are free of charge. Needless to say, any comparison with our own leisure-time activities leaves us far behind.

Entering a Peking subway station

I'm not saying that I or the twenty-eight others in my group achieved total understanding of the situation in China. We have barely scratched the surface, and now have a basis for further study. Also, I'm not saying that the people of the West are alone in their lack of knowledge and understanding. The Chinese are just as guilty of harboring misconceptions about us. Our guides knew very little of our way of life and did not inquire extensively about it. Throughout the entire trip we were treated with the utmost friendliness, politeness, and care; however, we know from reading Mao's Red Book that the Chinese are told to regard us as misled individuals who are struggling under a political system doomed to failure. It seems that the Chinese must also learn to accept us as we are and not judge us by their standards.

Inside Peking's 'Forbidden City'


A welcome for Canadian students at a children's recreation center in Nanking

Earlier I spoke of the Bamboo Curtain, an intangible something that separates China from the rest of the world. Most see this curtain as a barrier set up by Communism. But there is another way to look at it. Perhaps this curtain exists only in people's minds; it could be that the Bamboo Curtain is ignorance.

Memories run through my mind . . . our guides enjoying with us music and breathtaking acrobatic feats . . . the uninhibited children singing and dancing and holding out their hands to take ours as we were shown their commune or school . . . the incredible beauty and peace of the Great Wall in the mid-morning sun, experienced by visitor and native alike . . . the laughter shared, and the tears of parting . . . the faint beginnings of mutual understanding.

A kindergarten in Shanghai

A Prayer at Christmas

Give us the faith of innocent children that we may look forward with hope in our hearts, to the dawn of happy tomorrows.

Reawaken the thought that our most cherished desires will be realized, the things closest to our hearts – that we may come to an appreciation of the limitless joys and bountiful rewards of Patience, Charity and Sacrifice.

Above all, endow us with the spirit of courage, that we may face the perplexities of a troubled world without flinching, imbued with the child-like faith which envisions the beautiful and inspiring things of life . . . and restore the happy hours and experiences so many of us foolishly believe are lost forever.

Give us faith in ourselves and faith in our fellow man . . . then the treasures and beauties of life that make men happy will spring from an inexhaustible source.

And at Christmas, when the hearts of the world swell in joyous celebration, let us cast aside the pretense of sturdy men and live, if only for a day, in the hope and joy we knew as children.

Author unknown
Ideals, Vol. 16, No. 4, Oct. 1959

Un siècle du développement de l'enseignement au Québec et en Ontario

Première partie: Perspectives historiques et critères d'évaluation

Jocelyn Desroches
Département de sociologie, OISE

Le but général de l'étude, qui comprend deux parties, tend à comparer les systèmes d'enseignement du Québec et de l'Ontario, entre les années 1867 et 1967, pour mieux en faire ressortir les différences du taux de croissance.

L'hypothèse que cette étude tend à confirmer ou à infirmer, est qu'entre les années 1867 et 1967, le système d'enseignement de l'Ontario aurait joui d'un taux de croissance et d'un taux de développement général, d'une rapidité et d'une constance plus marquées qu'au Québec. Cette étude cherche donc à vérifier le bien-fondé de l'opinion couramment répandue au Québec qui veut que 'le système d'enseignement ontarien soit supérieur au système d'enseignement québécois'.

La vérification d'une telle hypothèse présente maints *problèmes* que l'on peut, pour en simplifier la tâche, répartir sous deux catégories: des problèmes de nature théorique et des problèmes de nature pratique.

Les problèmes de nature théorique peuvent emprunter la formulation suivante: comment construire un modèle qui pourrait faire clairement ressortir les différences qui existent entre les deux systèmes d'enseignement.

Les problèmes de nature pratique découlent du choix du cadre de l'analyse: comment recueiller les données et s'assurer que celles-ci mesurent bien la même chose.

C'est la science de l'économique qui a fourni à cette étude son cadre d'analyse tandis que la section de l'enseignement de Statistique Canada nous a prêté ses bons offices pour la cueillette des données.

Le *cadre d'analyse* de cette étude est inspiré d'un modèle proposé par John Cheal (1962) dans son étude intitulée 'Canadian Provincial School Systems. Their Input-Output Differences'. Contrairement à l'analyse de Cheal, notre étude ignore les facteurs sociaux, politiques et économiques; nous considérons donc ces facteurs comme des constantes.

Le terme 'input', qui a été traduit par critère d'évaluation, est dans cette étude, une mesure objective, le plus souvent quantitative, qui représente un certain nombre d'investissements destinés à l'atteinte d'objectifs tels que l'accroissement du taux de scolarisation (le rendement que l'anglais nomme 'output'). Ce modèle, tel qu'il a été conçu, implique une relation de cause à effet entre le rendement et les critères d'évaluation. Les résultats obtenus doivent cependant être interprétés avec beaucoup de prudence, car, comme le mentionne l'économiste T. W. Schultz (1961), 'il est très difficile de préciser avec justesse, dans le domaine de l'enseignement, les différences de nature qualitative'.

Les *critères d'évaluation* dont nous allons tenir compte, sont la qualification des maîtres de l'élémentaire et du secondaire du secteur public aussi bien en Ontario qu'au Québec pour la période s'étendant de 1910 à 1958, l'appui financier qu'accordent à ces mêmes écoles les gouvernements du Québec et de l'Ontario pour la période s'étendant de 1940 à 1957, et les subventions annuelles des universités et collèges québécois et ontariens entres les années 1931 et 1951.

Le *rendement*, qui est ici la variable dépendante, est mesuré par le taux d'abandon qui caractérise chacun des deux systèmes d'enseignement; autrement dit, nous cherchons à mesurer la force d'attraction de chacun des deux systèmes en comparant le nombre d'élèves d'âge scolaire (les jeunes de 5 à 18 ans) qui fréquentent les écoles élémentaires et secondaires publiques au cours des années qui s'étendent de 1881 à 1961 et en comparant le nombre d'étudiants, dont l'âge varie entre 19 et 24 ans, qui fréquentent les collèges et les universités au cours des années comprises entre 1921 et 1961.

De plus, le taux d'analphabétisme des Québécois et des Ontariens de plus de dix ans, qui avait cours au début du 20ième siècle, est mis en parallèle.

La présentation des résultats
Dans ce premier article, nous nous arrêtons aux étapes les plus importantes qui ont marqué l'évolution des deux systèmes d'enseignement au cours des années qui s'étendent de 1867 à 1967 et nous comparons deux des trois critères d'évaluation, que nous avons au préalable choisis, à l'aide de tableaux qui vous présentent les données relatives à la qualification des maîtres, à l'appui financier des gouvernements et aux subventions annuelles des universités et des collèges.

Les perspectives historiques
Nous voulons souligner les points saillants qui ont marqué l'évolution de la philosophie de l'enseignement tant au Québec qu'en Ontario pour situer dans leur contexte, les principales étapes du développement de leur enseignement.

Le Québec est tout d'abord imprégné par *l'influence* prépondérante du *clergé* qui définit l'orientation que doit prendre l'enseignement alors que l'Ontario est pris en main par un état qui veut diriger les destinées du système d'enseignement. Porter (1965) a démontré le rôle prépondérant joué par l'église catholique, au Québec, en faisant ressortir le fait que le gouvernement québécois n'a institué le ministère de l'éducation qu'en 1964 alors qu'un tel ministère fut créé par le gouvernement ontarien dès 1876.

Jusqu'aux années '50, *l'enseignement élémentaire,* au Québec, était le seul enseignement public accessible à tous. Cet enseignement consistait en douze années d'étude qui se répartissaient ainsi: sept années de cours primaire, deux années de cours primaire complémentaire et trois années de cours primaire supérieur. En Ontario, dès 1870, un système d'enseignement élémentaire public et privé, d'une durée de huit années, était institué; ce réseau d'écoles publiques et privées ouvrait la voie à l'enseignement secondaire, sans aucune discrimination de quelque nature que ce soit. La loi de l'instruction obligatoire, pour tous les jeunes de six à seize ans, qui fut promulguée en 1919 par l'état ontarien, n'entra en vigueur au Québec, qu'en 1961, et ne s'adressait qu'aux jeunes de six à quinze ans.

L'enseignement secondaire public, au Québec, ne fit son apparition que tardivement, c'est-à-dire en 1953. L'école primaire supérieure, comme le souligne René Fandrich (1934), ne correspondait vraiment pas à une école secondaire en ce sense que les diplômés de cet enseignement, qui regroupait la majorité des élèves québécois, ne pouvaient pratiquement pas avoir accès à l'université. L'enseignement secondaire était plutôt réservé à des institutions privées, presque toute dirigées par le clergé, que l'on appelait collèges classiques. Les collèges classiques ont fait leur apparition au Québec en 1635 et ont depuis joué un rôle primordial dans la formation de l'élite québécoise; le cours classique durait huit ans et était essentiellement orienté vers l'étude des belles-lettres, de la philosophie et des mathématiques. Ce cours n'était accessible qu'à une minorité d'élèves issus essentiellement des milieux favorisés. Ce n'est qu'au tout début des années '60 que l'état a institué un réseau de collèges publics qui ont pour nom CEGEP, c'est-à-dire collèges d'enseignement général et professionel. C'est en 1890, que furent créés en Ontario, les premiers 'high schools' et les premiers 'collegiate institutes'; cet enseignement permettait à tous les Ontariens de pouvoir accéder à l'université. C'est en 1921 que fut mis en vigueur un cours secondaire d'une durée de cinq ans.

Comme les autres enseignements, *l'enseignement universitaire* au Québec relevait presqu'exclusivement du clergé; cet enseignement était tout orienté vers les professions libérales que ce soit la théologie, le droit, la médecine ou la philosophie.

En Ontario, au cours des années qui s'étendent entre 1867 et 1960, le nombre de collèges et d'universités a cru plus rapidement qu'au Québec; on a de plus mis sur pied le système des 'honours courses' qui est un ensemble de programmes d'études très spécialisées.

Les critères d'évaluation
Tout critère d'évaluation (input) influe d'une façon quelconque sur le rendement (output). Le monde de l'enseignement n'échappe pas non plus à cette règle. Trois critères d'évaluation ont été retenus: la qualification des enseignants, l'appui financier aux écoles élémentaires et secondaires publiques et le total des subventions perçues annuellement par les collèges et les universités.

La *qualification des maîtres* est un critère important dans la mesure où elle est un indice de la qualité de l'enseignement dispensé dans les écoles élémentaires et secondaires publiques. Les données que révèle le tableau 1, ont été tirées du relevé fait par Urquhart et Buckley (1965).

Ce tableau nous fait voir l'écart qui existe entre le pourcentage de maîtres qualifiés de l'élémentaire et du secondaire en Ontario et au Québec. En 1910, il y avait 6.4 pour cent plus de maîtres qualifiés en Ontario qu'au Québec; cet écart s'accroît avec les années. Ainsi en 1940, l'année où les deux provinces ont connu leur taux le plus élevé de maîtres qualifiés, l'Ontario a plus de 15 pour cent de maîtres qualifiés que le Québec. En 1958, cet écart est de 13.5 pour cent.

L'appui financier des gouvernements à *l'enseignement élémentaire et secondaire public* est le second critère qui va nous permettre d'en mesurer l'efficacité. La mise sur pied, l'entretien et le développement d'un système d'enseignement coûtent extrêmement cher. Bloom et Stattler (1957) ont établi que plus on investit dans un système d'enseignement, plus la qualité de l'enseignement risque d'être grande.

Nous avons donc mesuré le pourcentage des investissements faits par les gouvernements du Québec et de l'Ontario, dans le système d'enseignement public (l'élémentaire et le secondaire); ces investissements sont en relation avec les investissements globaux de chacun des gouvernements.

Il est certain, si l'on réfère aux données du tableau 2, que l'Ontario a investi dans le champ de l'enseignement, de façon beaucoup plus généreuse que le Québec. Même si l'écart diminue entre les deux provinces au cours des années, il reste en 1957, encore important: en 1940, le Québec investit 1.8 pour cent du total de ses dépenses alors que l'Ontario y investit 6.0 pour cent; en 1957, le Québec y investit 9.9 pour cent et l'Ontario 14.8 pour cent.

La suite de cet article paraîtra dans la prochaine livraison de la revue, Orbit. *On y traitera, en premier lieu, du troisième critère d'évaluation puis, à l'aide de tableaux, on étudiera le rendement de chacun des deux systèmes d'enseignement.*

Faute de place, les références n'ont pu être incorporées au texte. Si vous désirez certaines précisions, veuillez communiquer avec l'auteur.

Tableau 1
Le pourcentage des enseignants québécois et ontariens des écoles publiques élémentaires et secondaires qui, au cours des années comprises entre 1910 et 1958, avait en plus de leur diplôme d'étude secondaire, au moins quatre ans de scolarité, dont une année de formation professionnelle

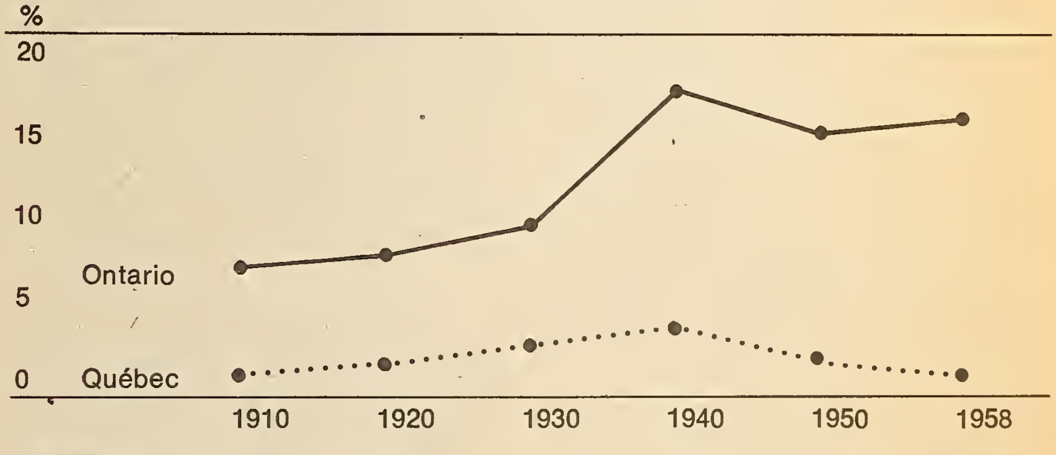


Tableau 2
Les subventions des gouvernements du Québec et de l'Ontario aux écoles élémentaires et secondaires publiques au cours des années s'échelonnant entre 1940 et 1957; ces subventions sont exprimées en pourcentage et sont en relation avec les investissements globaux des gouvernements pour chacune des années.

	1940 %	1945 %	1950 %	1955 %	1956 %	1957 %
Québec	1.8	6.3	7.5	9.7	9.4	9.9
Ontario	6.0	19.9	15.4	15.1	14.6	14.8

Réf.: M. C. Urquhart et K. A. H. Buckley, *Historical Statistics of Canada* (Toronto: Macmillan, 1965), p. 595.

Youth Alienation and the School System

A. Mikalachki
School of Business Administration
University of Western Ontario

The clash between alienated youth and mainstream society is constantly before us, expressed all too frequently in attacks by youthful iconoclasts on the values mainstreamers cherish. The terms that identify the two opposing groups are very familiar; let us make sure that their meaning is clear. 'Mainstream society' embraces the integrated family, the formal system of education, and acceptance by the young of responsibility to equip themselves to perpetuate their way of life; 'alienated youth' are those young people who have cut themselves off from established society by refusing to accept its goals and values.

Concern about the implications of youth alienation for the secondary schools led to a study in London, Ontario, in the 1971/72 school year, aimed at identifying the factors that play a part in that alienation. One hundred and ten young people between the ages of fifteen and twenty, drawn largely from the local secondary schools, served as subjects. The decision to undertake the study in our own area at that time was influenced by the sharp increase in students leaving school between 1967/68 and 1971/72. (see table 1).

While not all who left were dropouts, the rate of increase was such as to cause concern about the ability of the secondary school system to meet student needs.

The study got under way with the two classifications 'alienated' and 'mainstream.' But it soon became apparent that very few of the subjects were sufficiently alienated to reject all or even most of the goals of mainstream society. Many of them, however, had negative feelings toward life, thought they were being pushed around, and found their situation generally unsatisfactory. These young people described themselves as 'hassled'; members of the mainstream group spoke of their situation as 'okay.' Because these terms aptly described the two groups, we changed our study classification to 'hassled' and 'okay.'

Since the main source of subjects was the London secondary schools, the interviewer was able to make contact with the subjects informally in the halls or cafeterias. All data collection took place as private interviews, by special arrangement if necessary. Students who were having adjustment problems were included among the subjects, but in these cases names were obtained from principals or guidance heads and interviews were arranged. A few subjects were drawn from drop-in centers and therapeutic institutions.

At the interview, the subject was encouraged to discuss his feelings, first about life in general and then about such specific matters as the school system, his peers, his family life, and his future aspirations. Insofar as possible, direct questioning of subjects was avoided. At the close of the interview, the subject was asked to describe an incident in the recent past that had 'turned him on' or 'off.' Before leaving, he was classified as 'hassled' or 'okay' and this classification was discussed with him. In most cases he agreed with his placement. The subjects we chose fell almost evenly into the two groups, with 48 percent being 'hassled' and 52 percent 'okay.'

We had aimed for this situation for purposes of comparison, and it does not represent the proportion of young people falling naturally into the two categories. We found 'okay' young people much easier to come into contact with than 'hassled' ones. This may reflect a comparative dearth of 'hassled' people, difficulty in contacting 'hassled' people, or an unconscious bias on the part of the interviewer.

A review of our findings revealed four general areas of difference between the 'hassled' and 'okay' groups: attitude toward family, attitude toward school, goals for the future, and drug usage. These four areas served as points of comparison, and as a final step in the study we did an analysis to assess the relatedness of the four areas.

Study Findings

Attitude toward Family

Our findings indicated that there is a strong correlation between a young person's feelings about his family life and his attitude toward life in general. Of the subjects in the 'okay' group, 90 percent expressed positive feelings toward the family, while 92 percent of the 'hassled' group had a negative attitude toward family life. One interesting finding was that where positive feelings toward the family exist, the presence of an adult in the home throughout the day (particularly the mother) was not essential to a positive family experience. It did not seem to matter whether the mother was at home in the role of housewife or out at work.

One thing we found to be essential to a positive family experience was the right of the young person to considerable latitude in making his own decisions within the context of a high degree of communication with his parents. Communication with parents appeared to be a crucial factor. Many young people who regarded their home life negatively had great latitude in decision-making but their freedom stemmed from parental indifference. We found that the breakdown of communication in these homes was frequently aggravated by conflict between the parents in the form of either physical violence or loud verbal exchanges.

Subjects who regarded their home life positively stressed the value of certain aspects of it, particularly good communication with their parents and a warm relationship relatively free from open conflict between the parents. They seemed to find home life generally more satisfactory when major problems were handled by the father.

Attitude toward School

Members of the 'okay' group had a positive attitude toward school, while those of the 'hassled' group had a negative one. By actual percentages, 92 percent of the 'okay' group felt positively about school, and 83 percent of the

Table 1

	London Secondary School Enrollment as of Sept. 30	Number of students who left during year	Percentage who left
1967/68	13,780	742	5.4
1968/69	14,727	942	6.4
1969/70	15,468	1,004	6.5
1970/71	16,236	1,189	7.3
1971/72	16,972	1,626	9.6

'hassled' group regarded it negatively. The 'okay' group tended to obtain acceptable marks and to view the school as a means to an end – either higher education or a particular job. Sometimes they found school rules burdensome, but they did not allow this to stand in the way of achieving their own ends. The 'hassled' group, on the other hand, found rules and authority a constant thorn in the flesh and sought to flout them at every opportunity. They felt that the instruction the school offered was not suited to their needs and that the teachers not only failed to stimulate them but actually hindered any self-fulfillment they might hope to realize. In addition to regarding most of the teachers they had had very negatively, these students skipped classes frequently and were at pains to rationalize their contention that the school system was irrelevant.

Goals for the Future

The 'okay' group tended to have specific goals, but the 'hassled' group did not. The actual breakdown showed 83 percent of the 'okay' group having identifiable goals and 67 percent of the 'hassled' group having none. The 'okay' group tended to know, in general terms, where they were and where they were going. For the most part, they realized how their families and the school system contributed to the definition and attainment of their goals. The 'hassled' group had little real awareness of where they were at that point or where they were going in the future. It is interesting to note that 70 percent of the subjects who stated their future goals named occupations relating to the service rather than the profit-making area of society. Among the most popular choices were nursing, forest ranging, archeology; teaching, the armed forces, and, less frequently, medicine and law.

Use of Drugs

The 'okay' group generally did not take drugs; the 'hassled' group tended to be users. There was no evidence that any of the subjects used hard drugs like heroin, but 74 percent of the 'hassled' group admitted to drug usage as opposed to 16 percent of the 'okay' group. As reasons for taking drugs, subjects cited the influence of friends, the pressures of daily living, and dissatisfaction with life in general and a desire to escape from it. There was an even split between frequent and infrequent (once or twice a month) users. Subjects who did not use drugs were strongly opposed to their use both intellectually and attitudinally, and tended to regard the whole hippie-type culture very negatively.

Implications for the School System

The study demonstrated that a positive school experience is the result of many interdependent forces, some of which are external to it. Just as there is a correlation between a positive attitude toward life in general and a satisfactory family life, so is there a correlation between a positive family life and a successful school experience. There is an inevitable interplay of factors that make for success in each situation. The understanding of rules and their value that derives from successful family living is reflected in respect for and willingness to comply with school rules. Respect for parents in the home engenders respect for adult authority figures in the school. Responsible performance and success at school earn increased personal freedom in the home. And, as a result, the young person's positive view of life is reinforced.

Similarly, of course, we found that a negative school experience results from forces both internal and external to the school. Here, however, the influence of the family experience was even more obvious. Rules and their successful application have little meaning in a home where parental interest in the children's activities is lacking; as a result, school rules are burdensome and frustrating and devoid of obvious value. Parents who are in frequent conflict assume a negative identity in their children's eyes and the children are quick to transfer their negative feelings to other adults, particularly their teachers and administrators. Young people who know that their problems are of no concern in the home quickly assume that the same situation exists in the school. Because their parents take little part in their lives, these children have long been used to making their own decisions and regard as oppression any move by the school to guide or influence them. Inevitably they find themselves in a state of suspension with no constructive idea of what to do about it. As their problems multiply, they find life increasingly negative and frequently resort to skipping school and taking drugs.

Conclusion

On the strength of our findings, we believe that alienation begins in the home and that alienation from the family precedes alienation from society. While the study was small and restricted to a single urban area, it indicated very clearly that an understanding of the problem of youth alienation can be arrived at only through an understanding of various aspects of the lives of the people concerned – their family experience, their school experience, and the interaction of the one with the other.

A dialogue among educators (Brown, 1971; Weinstein and Fantini, 1970) regarding the appropriate focus of learning for the 1970s has relevance here. The dialogue focuses on cognitive and affective learning, whose respective functions Sterling M. McMurrin, former U.S. Commissioner of Education, has described as follows (1967, p. 41):

'The cognitive function of instruction is directed to the achievement and communication of knowledge, both the factual knowledge of the sciences and the formal relationships of logic and mathematics – knowledge as both specific data and generalized structure. It is discipline in the ways of knowing, involving perception, the inductive, deductive, and intuitive processes, and the techniques of analysis and generalization. It involves both the immediate grasp of sensory objects and the abstractive processes by which the intellect constructs its ideas and fashions its ideals.

'The affective function of instruction pertains to the practical life – to the emotions, the passions, the dispositions, the motives, the moral and esthetic sensibilities, the capacity for feeling, concern, attachment or detachment, sympathy, empathy and appreciation.'

It appears that cognitive learning does not take into account either the feelings and concerns of the student or the social environment that affects those feelings and concerns. But, as our study demonstrates, they have their inevitable consequences. Cognitive learning cannot take place in a state of affective disorder, and we can no longer assume that the family or some other agency will take responsibility for the student's affective development. It is imperative that school systems devote both their wits and their financial resources to the production of programs of affective learning. In them lies a response not only to youth alienation but also to many other human problems that challenge the educational system in this decade.

References

Brown, George I. *Human Teaching for Human Learning: An Introduction to Confluent Education*. New York: Viking Press, 1971.
McMurrin, S. M., "What Tasks for the Schools?" *Saturday Review*, January 14, 1967.
Weinstein, Gerald, and Fantini, Mario, eds. *Toward Humanistic Education: A Curriculum of Affect.* New York: Praeger, 1970.

Early Reading: Natural or Unnatural

By Ragan Callaway
Department of Special Education, OISE

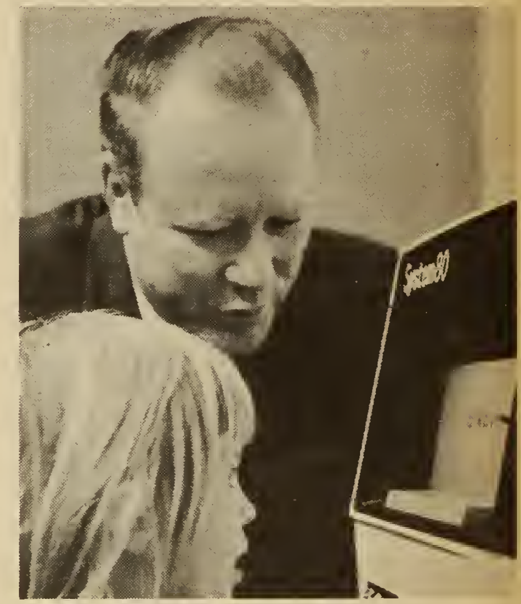
An increasingly large number of children are entering kindergarten and first grade who already know how to read. In fact, a considerable number of tots are learning to read, and read well, at three and even two years of age. The demonstration of this capability represents a problem in education today that deserves more study than it has yet received. Within current theoretical frameworks it is almost impossible to account for reading in infancy. The problem arises because conventional theories of learning depend exclusively on the idea of general intelligence as the source of potentiality for such tasks. Nevertheless, general intelligence alone will not account for numerous intellectual abilities observed in very young children, including the ability to read. Ethologists – biologists who study animal behavior – have been demonstrating since 1900 that all animals are capable of performing 'mental' tasks too complex to be explained in terms of the general intelligence characteristic of their particular species. Workers in infant form perception and linguistics have found that Homo sapiens is no exception to this rule.

The purpose of this article is to show how recent biological and linguistic research, when brought to bear on the problem, not only aids in accounting for the phenomenon of early reading but also illuminates other aspects of early learning. In my opinion, the major obstacle to an understanding of reading and other work with young children lies in inadequate theory, not lack of empirical research data. Certainly more experimental data are needed. However, there are numerous data on early reading that will remain meaningless until they can be assimilated into an adequate theoretical framework. Science historians have pointed out that any given scientific community will remain remarkably unaware of facts as long as they are unaccounted for by generally accepted theory. Theory determines the way we perceive things, and theory (according to a popular view of scientific method) is not regulated spontaneously as more empirical data are assembled. It is my conviction that the presently available data on early reading will assume dramatic new meaning when theory is made to harmonize with the principles of modern biology.

The generally accepted position on early reading is clearly seen in the writings of James L. Hymes. Hymes insisted for many years prior to 1960 that the average child of five and nearly all children younger than five could not learn to read. His position, like Gesell's, was that children have a built-in program that unfolds independent of the environment, and they will learn to read when and only when the genetic plan unfolds far enough. The genetic plan, for Gesell and Hymes, was concerned solely with the processes of general maturation.

For a variety of reasons, most workers in early education have implicitly assumed since the 1930s and 1940s that there is no need for close contact with and continual adjustment to advances in the biological sciences. Whatever the causes for this untenable separation of early learning from its natural anchorage in general biology, the effects have led to impotence and confusion: 'impotence' because there is no sound theoretical framework within which educators may tentatively evaluate data and practical programs; 'confusion' because of the excessive, more or less capricious proliferation of weak, disconnected partial theories and prescriptions for action. This theoretical vacuum is unnecessary.

With the work of O. K. Moore, Glenn Doman, William Fowler, and others, it became obvious in the early 1960s that many children of two and three could quite easily learn to read. Their findings caused Hymes to change his position and proclaim that although young children can learn to read, they will pay a great 'price' for this 'unnatural' achievement and eventually fill our mental institutions. Many authorities on early learning follow this tack. Emphasis on the price children supposedly pay in terms of mental and emotional strain is based precisely on the same unjustified assumption that prompted the now-discredited belief that very young children could not be taught to read – namely, that general intelligence is the only source of 'mental' ability.


The author, Dr. Callaway, working with a young student

This assumption is central to the generally held theory of *equipotentiality* in learning, which asserts that all learning is carried out by the same kind of mental processes, and any act of learning is thus essentially like any other act of learning. If learning were equipotential, learning difficulty simply would be a function of intrinsic complexity and Hymes's position would be reasonable.

However, it is easy to show that ease of learning is often not related to task complexity. Although learning to read is obviously a very complex process, it does not follow that it is necessarily a difficult task for young children. Learning to understand and produce sentences is infinitely more complex than learning to read, but everyone expects two-year-olds to casually and easily accomplish this task.

Actually, there has never been an excuse at any time in modern history for educated people to adopt the notion that children of two, three, and four could not learn to read. There is abundant and overwhelming evidence that those individuals who were responsible for the advance of Western civilization almost invariably came from families that, among other significant practices, produced early readers. (See, for example, Victor Goertzel and Mildred Goertzel, *Cradles of Eminence*.) The great men of history did not emerge merely because they received a rare set of genes, although this is surely significant. More important, they had parents who educated them in highly atypical ways – ways that luckily took advantage of biological principles of which no one could have been fully aware until recently.

Before elaborating further on the specific misconceptions that, in my opinion, unnecessarily befuddle the issue of early reading, some personal experiences are in order. I became interested in the area of early learning in 1958, when my first child learned to read at the age of 2 years 8 months. The details of methodology will not be given as there is insufficient space and also because I believe they are relatively unimportant, especially when they are compared to the theoretical misconceptions that blind many to the existence and implications of large amounts of readily available data.

I presented the first three letters of the alphabet to my son one night when he was 23 months old and was delighted when he recognized them the next day. He knew the names of all the letters within a month. I then began presenting individual words to him. During the period between 2 years 0 months and 2 years 8 months he learned about 200 words and acquired a rudimentary knowledge of phonics. At this time he suddenly discovered 'how to read sentences' and on his own initiative began reading simple books. At this age he was able to successfully attack most new words that he encountered.

The next four months were extremely exciting and rewarding for my son. As well as being a physically active, robust, and generally average boy of his age, he spontaneously read an average of four to five hours per day, adding 600 new words to his recognition vocabulary. By the age of 3 years 0 months he had a recognition vocabulary of 800 words and tested at the third-grade level on several standardized reading tests.

These four months were also the most crucial in my own educational experience.

Could general intelligence account for this accomplishment? What level of IQ would be necessary? Simple calculations based on equipotential learning theory – which includes all established learning theory, both behavioristic and cognitive – and the structure of intelligence tests would require an IQ far in excess of 200. If my son would need an IQ of 200 at age three to be equal in general intelligence to an average child of six and was reading at the level of an average eight-year-old, the inadequacies of current theories can readily be seen.

Could something be operating here in addition to general intelligence? We may evade the issue temporarily and beguile ourselves by appealing to high motivation, parental pressure, improved methodology, personality factors, behavior modification, stimulating environment, and so on to explain such precocious behavior. However significant these factors may be, they neither deal with nor explain away the theoretical difficulties mentioned above. The problem remaining is that of specialized capacity. Equipotential learning theory based on the concept of general intelligence can offer no credible rationale for the capacity demonstrated in the precocious behavior of my son and the thousands of other children who have learned to read very early. The processes of general maturation, however well they are accelerated by environmental manipulation, develop much too slowly to account for this kind of behavior.

Later, as principal of an elementary school, I encouraged interested parents to casually give their preschoolers an opportunity to learn some of the skills of reading, with the result that many of these children entered kindergarten as good readers. These children continued to excel in reading through the elementary grades. While I was on the faculty at UCLA, we made several studies concerning the ability of nursery school children to learn basic reading skills. Not only did nearly all of the children, whose ages varied between 2 years 6 months and 5 years 6 months, make good progress, but it was found that neither chronological age, mental age, nor IQ was a significant factor in their achievement. This is unthinkable within the framework of learning ability based solely on general maturation; however, it is quite probable if species-specific abilities are significantly involved.

If these findings are supported by future studies, a reasonable inference would be that by teaching children to read in the early years we are actually tapping a source of learning ability other than general intelligence. There is no hint of this possibility in learning theory, and yet it is deducible from the principles of ethology and consistent with other basic research. In any event, there is an alternative way of conceptualizing intellectual development, but understanding will depend upon a broader base of knowledge than now obtains. We must step back and take in more of the whole of which intellectual development in man is but a part. Man is a biological organism, and the basic biological processes underlying intellectual development in man are the same as those sustaining life in all its forms. This broader, more realistic view will permit the assimilation of presently discordant data and, most important, it will make the central concept of mental development compatible with recent biological research findings.

A major tenet of ethology is that every animal possesses specific abilities that are characteristic of its own particular species. Sometimes these abilities are almost completely built-in, although often what the genetic information does is make the animal highly reactive and cognitively receptive to particular kinds of stimuli so that learning is guided in characteristic ways. By definition, learning that is facilitated in any specific way by the genetic master plan (that is, other than through general maturation) is not equipotential. Many species-specific abilities in animals are exceedingly complex and can only be acquired with difficulty, if at all, by man. Since the animals concerned clearly experience no difficulty, we know that nature has provided a shortcut to knowledge by furnishing specialized genetic information.

For example, some birds fly to distant places by celestial navigation. This has been rigorously demonstrated by placing 'naive' birds – ones that had spent their entire lives indoors in a constant environment – in planetariums during the season in which they would normally migrate, and observing their bodily orientation in relation to projections of stellar configurations that would change to correspond to the appearance of the sky from various points on the earth's surface. Some bird species showed a remarkable ability to adjust their headings in order to remain on course toward their biologically predetermined destination. Even when the projected night sky would be suddenly shifted thousands of miles off course, the birds were able to make the appropriate change in heading. Here we have an excellent example of a high-level 'cognitive' ability ('cognitive' because information-processing of considerable complexity, flexibility, and abstraction is involved even though it is obviously not calculated in terms of the birds' mental awareness); and this ability is almost entirely provided by specialized inherited information. How much general intelligence would be necessary if this ability had to be acquired equipotentially? Clearly more than many normal humans have. Examples of this kind could be multiplied indefinitely.

Man also has some almost totally built-in abilities. The ability of the six-month-old infant to 'know' the real shape of an object regardless of its orientation in space is in this category. The intrinsic complexity of this ability is attested to by the fact that while scientists are able to build automatons that play an excellent game of chess, they have not been able to build an automaton that can perceive simple objects variously oriented in space sufficiently well to move about without constantly bumping into them. There are many other complicated built-in 'constancy functions' in man of which we tend to be unaware because they are automatic. Within the frame of equipotential learning theory, of course, these constancy functions could not exist.

Among the most important special abilities in terms of educational implications are those pertaining to form perception and language acquisition. Human infants have a much more sophisticated visual system than was previously thought. They are able to perceive visual patterns at birth, and before the age of three months they have an extraordinary ability to discriminate between patterned configurations. At this stage in their development they can discriminate between patterns as complex as letters and words. Additionally, they show a preference for certain patterns relative to others at various periods in their development that cannot be attributed either to the capacity of the visual system per se or to experience. In short, the infant's visual system is finely tuned to register certain kinds of information from the external environment.

Recent studies of many immature visual systems, along with ethological work over the past seventy years, demonstrate that it is inconceivable that any animal acquires all of its visual information equipotentially. But although there is unassailable evidence that man also has species-specific visual capabilities, most authorities in early education maintain that man processes all visual information by means of general intelligence alone. Therefore, a child's readiness to deal adequately with the form-perception tasks of reading must be, according to this inadequate view, based strictly on general intelligence.

A pertinent attribute of at least some early form-perception capabilities is that they must be exercised adequately or they regress. In other words, there is a type of sensitive period for form perception. Could this help explain the fact that while infants can easily discriminate between letters many older children and adolescents who have not learned to read cannot? The vast majority of reading failures result from an inability to master form-perception skills. It is not unreasonable to hypothesize that appropriate early experience in recognizing letters and words would prevent most of these failures. Curriculum planning for the young child can hardly be valid if it ignores the data on species-specific form-perception characteristics.

The problem of language acquisition in the young child centers around the puzzle of the sentence. The sentence is a problem because there is no way to account for the way a young child comprehends and constructs a sentence. This may sound odd, for almost all children, dull and bright, deal adequately with the sentence – about as naturally and easily as birds guide themselves by celestial navigation – but it is one thing to have the ability and another to explain it satisfactorily. Linguists have plainly demonstrated, since Chomsky's breakthrough in 1957, that the abilities necessary for language acquisition are far too demanding to be explained by reference to general intelligence and equipotential learning theory. The only alternative is biologically based special abilities.

Nature has provided for language acquisition in man in exactly the same way she has provided for specialized know-how in every lower animal. Children between the ages of 18 months and 3 years 6 months acquire language effortlessly by means of particularized information coded in their genetic material. As in scores of known instances with animals, environmental input is also essential if learning is to occur. The purpose of the built-in information is to enable the human brain to process the language input so that literally hundreds of highly abstract and complex rules are unconsciously inferred. These rules are so complex and theoretically difficult that it is doubtful if an intelligent adult would be able to master them sufficiently, by means of general intelligence alone, to generate sentences fluently. It is the child's competence in utilizing these complex rules in understanding and constructing sentences that substantiates the existence of species-specific language abilities. As in form perception, the ability to acquire language regresses if not exercised. Individuals who have not learned to understand and generate sentences by late childhood will never learn to do so with normal facility. So the ability to acquire language is also delimited by a sensitive period.

One fact regarding the relationship between the sensitive period for language acquisition and early reading is obvious from the perspective of linguistics. The child is not *taught* to analyze the sounds of spoken language into meaning; this is accomplished spontaneously by the child in a normal social environment. The child's brain is specifically structured and organized by the genetic master plan to complete this task before the age of four. (This specialized organization is referred to by linguists as the Language Acquisition Device or LAD.) In fact, by the age of two the average child has already made considerable progress in analyzing the sound patterns of spoken discourse in terms of sentence structure and meaning. Instruction has little effect on this process, in contrast to the process of concept development, which is furthered, of course, by direct tuition. Since the ability to analyze the sounds of language in terms of meaning and sentence structure is already a part of the child's knowledge, it is not an appropriate goal for reading instruction. Realistic goals build, within the limits of his concept development, upon the child's knowledge of the sound patterns of language. Just how other aspects of reading are facilitated by the child's sensitive period for language acquisition is not clear, but there is evidence that the young child, when given the opportunity, is able to acquire the basic skills of reading almost as easily and naturally as he learns to understand and speak his first language.

Summing up, four indisputable sets of data confront every parent and educator of young children: (1) nature knows how to expedite specific kinds of knowledge through the genetic master plan; (2) the young child is generously endowed with special capabilities in form perception and language; (3) the process of learning to read requires many of the special capabilities of form perception and language that the young child is heir to; (4) young children of two, three, and four years of age often learn to read very easily. The mere recognition of these sets of data suggests the likelihood of a certain consequence: namely, that (4) is a natural sequel to (1), (2), and (3).

The young child will quickly give the full answer when we give him the opportunity to speak for himself, and are respectful enough to listen attentively. We must not unwittingly deprive our young children of the joy that comes with realizing a specifically human capability.

The T.A.M.A.C. A Total Test for Total Use

by F. Johnson and S. Dragich (principals with the Windsor Public School Board), M. O'Bryan (University of Toronto), and K. O'Bryan (OISE)

Introduction

As an eminent educator of the old school has often observed, 'What we need is a test that will provide us with a *total assessment of the mental abilities of children.*' The T.A.M.A.C. (as it will probably come to be known in everyday clinical parlance) is the logical outgrowth of this need. It is a test that we hope will prove as useful as the W.I.S.C. and Stanford-Binet measures now so widely employed in schools throughout North America, with the added advantage that it will require neither proficiency on the part of the examiner nor an excessive amount of time to administer.

Given that the same accuracy of measurement can be established, this new test should provide educators everywhere with the opportunity to make an almost instant and accurate appraisal of any child's intelligence (with the one proviso that the subject must have a basic word-recognition vocabulary).

Advantages of T.A.M.A.C.

The T.A.M.A.C. will be found to differ from other individual tests of intelligence in three important ways:

a) Every attempt has been made to develop a test as free of cultural bias as possible. While administration of this test to residents of southern Africa is contraindicated, a second form of this test (Form B) is now being developed, and it is expected that the data obtained from pretesting will prove it sufficiently reliable for use in this region.

b) Since the test is really so simple to administer, it will be possible to test far more children on an individual basis in a much shorter period of time than ever before. The test itself, because it has only one basic test item, virtually eliminates the need for the development of subtests, such as those on information, comprehension, similarities, and picture arrangement.

c) Because we have striven for perfection in the questionnaire itself (insofar as 'perfection' is an attainable goal), only the *responses* have needed standardization and classification in order to be applied to the intelligence scale.

Considerations

The administration of this test requires the material to be properly organized, a quiet room, and a relaxed atmosphere conducive to the development of a friendly relationship between the examiner and the subject. The performance material should be kept out of the subject's range of vision until the examiner is ready to make his presentation. (It should be noted that children often react unfavorably to a procedure that suggests concealment; therefore, the whole setting should be arranged in a straightforward manner implying that *a pleasant experience is about to take place.*)

Even though the directions for the T.A.M.A.C. will likely become so familiar to the examiner that he can follow the manual and record the responses of subjects without hesitation, it is recommended that he read from the manual *directly* rather than change the wording of the instructions. To increase scoring accuracy, the examiner may find it necessary to query individual subjects further on occasion. However, it must not be suggested to any subject that his answer can be improved. The examiner may say to him: 'Please explain further,' or 'Tell me more about it.' This should offer the subject sufficient encouragement to clarify his statement so that it can be scored accurately.

Directions for Administering T.A.M.A.C.

After the necessary rapport with the subject has been established, the examiner says:

'I'm going to show you a picture.' (See note 2, in the section following.)

'I want you to look at the picture carefully and tell me what you think it is.'

We have found in the administration of this test that at this point the subject may say, 'I don't know.' As mentioned in the preceding section, further querying here may be necessary in order to get a response that can be scored. A *supplementary question* is included to overcome this difficulty. Say, 'Well then, tell me what you *think* it might be.' We have found that this supplementary question will elicit from the subject at least an initial response. However, if this initial response still requires a better understanding in order to be scored, 'Please explain further,' and/or 'Tell me more about it,' are acceptable further queries. (*N.B.* If the subject does not do well on the test, it is helpful in maintaining rapport for the examiner to say quietly, 'That *was* a little hard; we'll try again later,' or to use some other *supportive expression.* In no case should the examiner indicate dissatisfaction with a poor response.)

Background Notes

1. *Computing the Intelligence Quotient Scale*

Because we do not feel that the theory of intelligence that stresses the comparison of a child with peers of his own chronological age (though perhaps valid) need be applied here, no attempt has been made to derive I.Q.s separately for each age. Rather, the responses from a five-year-old child and a fifteen-year-old child will be equally applicable to our scale. We feel that the degree of difficulty inherent in the test remains the same as the child becomes older. In trying to make this so, great care has naturally gone into the selection of the test item.

2. *To Achieve an Even More Accurate Score*

Undoubtedly an even more precise score could be obtained by using a *real aardvark* (or platypus if using Form B). However, because of the great demand anticipated for this test and the difficulties anticipated in obtaining a ready supply of aardvarks, we have had to substitute a picture (but see note 7).

3. *As to Its Objectivity*

We realize that there is no such thing as a purely objective test. As in other tests, the results of the T.A.M.A.C. are somewhat dependent on the judgment of the tester. We have made every attempt to develop a scoring key that covers the most typical responses and reduces the likelihood of evaluator subjectivity (see accompanying scoring guide). In difficult cases, however, the examiner may find unusual responses that are not easily classified. In such instances he will have to use his own judgment. Remember further querying may be done in the neutral manner prescribed earlier.

4. *Reliability and Validity*

If a test is valid, it measures precisely what it was designed to measure. If it is reliable, similar results may be obtained by retesting (although perhaps in another form). It is interesting to note that

The T.A.M.A.C. Scoring Guide

I.Q. Rating	*140 & Above* *Brilliant*	*130 - 139* *Enlightened*	*120 - 129* *First Rate*	*110 - 119* *Extraordinary*	*100-109* *Ordinary*	*90 - 99* *Fair*	*80 - 89* *Marginal*	*70 - 79* *Dim*	*69 & Under* *Incomplete*
Responses	aardvark	kangaroo	anteater hog pig rhinoceros hippopotamus buffalo donkey mule	mammoth gnu platypus elk panda llama elephant dinosaur camel antelope bear	armadillo yak beaver goat cow deer fox rabbit sheep horse cheetah gazelle koala moose ox seal reindeer	guinea pig otter rat badger bobcat bull ape jaguar porcupine panther giraffe lion raccoon	hedgehog coyote gopher baboon dog (domestic) chimpanzee squirrel skunk	crocodile alligator lizard cat (domestic) monkey	bird turtle chicken snake insect (any name of a bird, snake, insect, etc., is acceptable)

Note: The following physical features are characteristic of the aardvark: size, head, snout (scored separately), claws, body covering, hump, ears, tail. In classifying all possible responses (animal), a point was assigned for each matched visual characteristic of an aardvark. Therefore, a kangaroo has only 7 (characteristics), an anteater 6, a mammoth 5, etc.

T.A.M.A.C. was created quite by accident while one of the authors was trying to establish the intellectual potential of a child in a way that would be acceptable to both mother and school and yet be accurate. The results of a previous W.I.S.C. supported the school's assessment of the child. The mother, however, could not be convinced that either the ongoing assessment of the school or the individual intelligence test were accurate measures of the child's ability. During an interview on this very point – while author, mother, and child were standing together – a piglet, fleeing from the confines of the science room, ran down the hall past the trio. The child in question could not help but take a good look at the piglet as it sped by. Turning to its mother it excitedly remarked, 'Oh Ma . . ., Ma . . ., Ma . . ., look at the little *cow!*' The evidence provided by this impromptu test was so incontrovertible to those concerned that the mother seized the child and left the school, thereby demonstrating in very practical terms her acceptance of the validity of the measure. The school concurred. Thus was the T.A.M.A.C. born. The obvious reason for substituting the aardvark for the piglet in the final standardized test was mentioned in the Introduction (i.e., the attempt to reduce the cultural bias as much as possible).

5. *Teaching to the Test*

The authors realize that much of the difficulty in interpreting scores obtained on other intelligence tests stems from the fact that 'teaching to the test' may have taken place inadvertently. It should be noted that we are not concerned in our scoring guide with how the child *gets* the answer (as long as the testing procedures are carried out properly). We are only concerned that the child *has* an answer.

6. *What About the Practice Effect?*

Where it becomes necessary to retest the child, Form B of the test, now in preparation, can be used. If further tests of reliability become necessary, the authors are involved in an ongoing research study, the results of which should produce a list of ten other appropriate animals that could be used as a basis for still further forms of the test.

7. *Establishing Standard Measures* (see scoring guide)

One of the big problems in using a picture is that size is hard to determine. In order to refine our classification (since size was a factor) one of the best-known sculptors in Canada is now commissioned to do a life-size replica of the aardvark so that a standard measure may be established for all body dimensions.

Conclusion

We hope that our colleagues and concerned educators everywhere will find T.A.M.A.C. a satisfactory instrument for appraising the mental abilities of children, that they will participate in a large variety of researches into its use, and cooperate fully in its ongoing evaluation. Indeed, *we* have found the researches into this test a stimulating and worthwhile experience, and it is our belief that others will find the same.

Before we move on from the important (indeed, some would say 'fascinating') subject of compiling, testing, norming, and validating intelligence measures on children of all ages, we feel it might be relevant to point out that we are, ourselves, successful products of the great testing eras of the late thirties, mid forties, early fifties, and subsequent sixties. Although none of us can share at first hand the experiences of children of the current decade, we can, through our own undoubted success in the system that spawned both us and the many and varied tests of intellectual competence, attest to the true value of intelligence testing.

It must never be thought that our confidence in T.A.M.A.C. marks the end of our search for ever more compact and absolute measures. On the contrary, it is our hope that this will signal a new beginning and revitalization in the great testing society that is North America.

Must Organizations Fail?

A New Graduate Program Studies School

T. Barr Greenfield, OISE

The devil is said to have watched smiling as God sent good to help man in his struggle with evil. 'What will you do now that good is in the world?' asked the devil's companion. 'I will organize it,' replied the devil.

Those who work in schools know the dilemma of organization too. On the one hand, it appears that organization always gums up the works in a frustrating and diabolical fashion. What was good in itself turns sour when an organization grows around it. On the other hand, it seems that our best hopes and aspirations cannot be realized unless we can build organizations that will bring them into being.

In schools, we are always changing the organization and then wondering why it didn't work out. What we do in all this changing is essentially to combine men, materials, and knowledge into various constellations. In shaping these constellations we assume we know how they affect people. Thus our concern for organization in education stems from the assumption that what children learn in school is dependent on the way the learning environment has been put together.

Much of the current effort to improve education involves organizational innovation. Although the outcomes of this wave of reform are not entirely clear, it is apparent that the revolution in schools has brought us up sharply against some intractable problems.

Some examples:
First, when an open-plan high school required students to take responsibility for their own learning, many students felt anxious and unable to learn. Their anxiety remained over a long period of time.

Second, consider the short, happy life of a 'free' elementary school. After criticizing local schools, a group of parents were given the opportunity to run their own school. After a year trying to create a 'humane' school, some of the parents withdrew in bitter disappointment. During the year there had been continued conflict among students, parents, and staff over the new organization. An agreement on apparently fundamental educational aims did not provide a practical design for the new school.

Third, educational reformers persuaded a large city school board to permit the parents in a poor area of the city to participate in the selection of a principal for their school. This step would enable these parents, whose interests had so long been neglected by the school system, to participate in significant policy-making. The parents in the community came out in large numbers and decided firmly not to participate in the selection of the principal.

Fourth, the rationale for open-plan schools suggests that they foster teamwork among teachers. Effective teams do operate within open-plan schools. Yet it also commonly occurs that groups of teachers experience severe difficulties in establishing teams. Questions of who is to specialize in what and who is to have authority over whom turn out often to be rocks on which the teams founder. These outcomes shake the common assumption that physical architecture determines social architecture. Clearly, open-plan schools are more than their architecture. But what is that 'more'?

In education we know too little about *designing* schools for educational purposes. We build them and then live with them for a long time for better or for worse. Currently we are apt to think of schools as worse than they ought to be. But as the examples above demonstrate, there are few perfectly obvious ways to improve them. Two things seem clear as we think about schools as organizations: First, we need to know more about schools as they are; although it is unfashionable to suggest it, it appears that we cannot create radically new and better schools until we know what holds together the existing organizational world in schools. Second, we need to speculate more about alternative organizational forms for schools and the procedures needed to implement them.

In September of this year, OISE launched a new program of graduate studies aimed at understanding schools as organizations. The program in Educational Organization and Design arises from a growing concern about this area and from the belief that improvements in education require changes in the basic structure and concept of schools. Located in the Department of Educational Administration, the program marks an innovation in what is conceived as administration. It makes no attempt to train administrators for specific responsibilities or positions in schools. Rather it aims to train people in organizational analysis – the ability to understand, design, and consult with organizations rather than to run them.

The nature of study in the program is speculative and theoretical with an emphasis upon research-based inquiry. Yet the aim is essentially practical: to understand the organizational world of schools and to develop ways for creating effective learning environments. The program recognizes that the best theory and research stems from a close acquaintance with the world as it is. In line with this thinking, the five faculty members involved have strong links with schools, and yet each brings a distinctive theoretical orientation to the task of understanding schools.

It is further recognized that graduate studies have too often suffered either from a sterile academism or from a spurious involvement with the 'now' problems of the day. To avoid these pitfalls, the program regards experience and understanding as integral elements of learning. It deals with problems of values as much as it examines intellectual issues.

In short, the program in Educational Organization and Design is conceived as a miniature organization itself. The processes within it are as much valid subjects for study as are processes within other educational organizations. In line with an innovative approach to the design of educational organization, the usual structure of haphazard courses found in graduate programs has been replaced by a single series of experiences shaped by an instructional team. Interaction between faculty and students is varied and intense. Learning is fostered through seminars, tutorials, independent papers, research apprenticeships, and internships in schools.

To support the intense interaction required for the program, it is offered only through full-time study leading to M.A. or Ph.D. degrees. It is anticipated that graduates will find employment as consultants, organizational analysts, and teachers working to apply theory and research to the organizational problems of schools, colleges, and other educational enterprises.

Further information about the program may be obtained by contacting members of the instructional team. Phone, write, or visit Dr. Stephen Lawton or Dr. T. Barr Greenfield at OISE.

Union Carbide Canada Limited

The following is a representative sampling of the films available from the film library of Union Carbide Canada Limited. All titles reviewed are 16 mm. and in color. (A complete listing appears in the Union Carbide film catalog available on request from the address shown below.) Films should be reserved at least two weeks before the date of showing and requests should include an alternative choice.

Please address requests to:
Union Carbide Canada Limited
Public Relations Department
123 Eglinton Avenue East
Toronto, Ontario M4P 1J3

The Discoverers
(20 minutes)
The film deals with the wide spectrum of technology used by Union Carbide. Attention is given to the company's explorations in such areas as lasers, fuel cells, microcircuitry, oceanography, and nuclear energy, and to the role Union Carbide is playing in developing countries.

The Petrified River
(28 minutes)
This award-winning film, made by Union Carbide Corporation and the United States Bureau of Mines in cooperation with the United States Atomic Energy Commission, describes the evolution of uranium deposits in the Colorado Plateau. It also shows mining and refining processes, the harnessing of the atom's energy, and its uses.

The World of 'Sevin'
(22 minutes)
A film visit to agricultural areas in Australia, Argentina, Trinidad, El Salvador, Japan, Spain, France, Africa, Egypt, and the United States shows how 'Sevin' insecticide helps the farmers of the world grow better crops.

The Air-Acetylene Flame
(10 minutes)
The basic techniques of soldering, heating, and brazing are demonstrated through a variety of everyday jobs such as auto-body soldering, soldering a hole in a pail, soldering cable ends into lugs, soldering sheet metal with an enclosed-flame soldering iron, paint burning, etc.

Flame Cutting
(11 minutes)
The basic techniques for cutting metal with an oxy-acetylene blowpipe are illustrated and close-up shots and animation show how to make straight lines and bevel cuts, cut circles and simple shapes, and pierce holes in heavy plate.

Braze Welding
(13 minutes)
An instructional film for use in training welding operators. Step-by-step techniques in braze welding are shown and attention is given to typical uses in product fabrication and repair.

Fusion-Welding
(11 minutes)
Another contribution to the training of welding operators. The film gives basic instruction for making fusion welds in steel plate with the oxy-acetylene blowpipe, and uses close-up shots and animation to teach a number of processes in fusion-welding.

Oxy-Acetylene Flame—Master of Metals
(20 minutes)
Produced by the International Acetylene Association, this film traces the development of the oxy-acetylene industry from the making of calcium carbide and the extraction of oxygen from the air to the many uses of the oxy-acetylene flame in twentieth-century industry. Animated cartoons and non-technical narration explain basic ideas.

Gift of Kings
(13 minutes)
Rubies and sapphires have long been prized by caliphs and kings, and the rarest of them have been those stones whose depths contained a perfect six-pointed white star. The film traces the legend of these stars and follows man's seemingly futile attempt to reproduce them, up to the day in 1947 when Union Carbide discovered their secret. The camera goes behind the scenes to show how 'Lindé' stars are grown, cut, and polished.

Modern Gem Cutting
(25 minutes)
A beginner's course in cutting synthetic stones given by an experienced gem cutter. 'Lindé' synthetic titania is the gemstone used.

Method for Miracles
(15 minutes)
Union Carbide's latest film on star gems explains synthesis in such terms as science, art, design, history, people, and precious stones. The film shows how 'Lindé' stars are cut, polished, and used in fine jewelry.

Breath of Life
(12 minutes)
Cartoons are used to dramatize the necessity of oxygen to life. An animated diagram shows how the blood picks up oxygen from the air in the lungs and carries it to all parts of the body.

Charlie's Day
(11 minutes)
The proper handling of oxygen in the hospital environment is dramatically shown in a film produced by the National Film Board of Canada for the Department of National Health and Welfare.

New Wonders with Wieners
(11 minutes)
(English and French)
How to give wieners extra eye and taste appeal at the table. (Recommended for Home Economics classes)

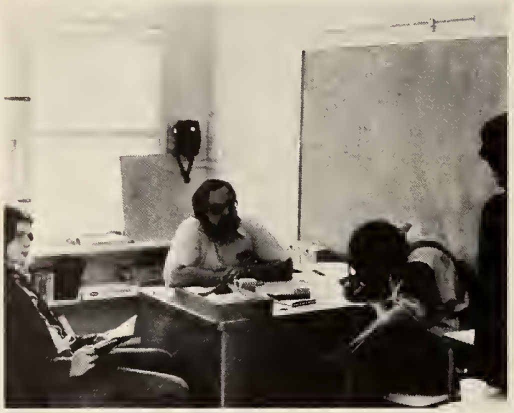
You Can Do Wonders with Sausages
(20 minutes)
How to make new and different dishes with sausages. (Recommended for Home Economics classes)

The Switchables
(11 minutes)
How dynel hairpieces may be used to solve hair-styling problems. (Of interest to Home Economics classes)

Subway Academy

Profile of a School/22

The latest addition to those Toronto secondary schools providing an alternative approach to education is Subway Academy. The school was opened in September this year and operates out of three portables alongside Eastern High School of Commerce. There are over sixty students, most of them in grades 10 to 12, and a teaching staff of three. Aubrey Rhamey, principal of Eastern Commerce, has overall responsibility for the school and one of his vice-principals, Jack Webb, is responsible for the day-to-day activities. A committee of teachers, parents, students, and representatives of the education establishment meets weekly to discuss policy matters.



Subway grew out of a project of Dale Shuttleworth's at the Toronto Board to compile 'a directory of human resources, learning materials, activities and experiences' available in the Toronto area from which all Toronto schools would be able to draw. Subway was conceived as a school specifically designed to exploit these resources, rather in the manner of Philadelphia's Parkway Program (see *Orbit* 3).

As yet, only the first part of this resource file, covering the east end of Toronto, has been completed. Meanwhile, Subway students may select classes at any one of Toronto's secondary schools (the city's most obvious education resource), or follow a program of independent study (under the guidance of the Subway teaching staff or other willing teachers), or combine the two. On the one hand, the students are offered more independence and a wider choice of learning experiences. On the other hand, the attachment of the school to an established secondary school does provide some sort of structured home base.

It is still too early to make judgments about the school. The first group of students are predictably enthusiastic, and present efforts are being directed toward achieving a greater sense of unity — especially difficult in a school where the students are seldom together as a group. Mr. Rhamey sees the value of the school in this way: 'There is sufficient change occurring in the established schools to accommodate the needs of the vast majority of students. But there are still too many students who, for one reason or other, are "turned off," and it is schools like Subway that can make education meaningful for them.'

Canada Post Postage paid
Postes Canada Port payé
Bulk third class
En nombre troisième classe
P403 Toronto